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LITHIC ANALYSIS OF THE JOT-EM-DOWN SHELTER (15McY348) COLLECTION: SETTLEMENT PATTERNS, RAW MATERIAL UTILIZATION, AND SHELTER ACTIVITIES ALONG THE CUMBERLAND PLATEAU

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THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Arts and Sciences
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By

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London, Kentucky

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ABSTRACT OF THESIS

LITHIC ANALYSIS OF THE JOT-EM-DOWN SHELTER (15McY348) COLLECTION: SETTLEMENT PATTERNS, RAW MATERIAL UTILIZATION, AND SHELTER ACTIVITIES ALONG THE CUMBERLAND PLATEAU

The Jot-em-Down Shelter (15McY348) was excavated by U.S. Forest Service archaeologists in 1986. The present study concentrated on the lithic assemblage, with a particular focus on the chipped stone debitage. The Jot-em-Down Shelter lithic assemblage was compared to assemblages recovered from four nearby sites, open sites 15McY570 and 15McY616, and rockshelter sites 15McY403 and 15McY409; and rockshelter sites located in and near the Red River Gorge, Cold Oak Shelter (15LE50) and Rock Bridge Shelter (15WO75). This study determined that Jot-em-Down Shelter was a multicomponent site utilized by mobile groups of people from the Early Archaic through Mississippi periods. Use of the site intensified around the Late Archaic and Early Woodland periods. Prehistoric peoples who occupied the shelter had contact with other groups from the surrounding area, hunted nearby, and processed hides.

KEYWORDS: Excavation, Rockshelter, Lithic Analysis, Late Archaic, Early Woodland

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Table of Contents

List of Tables

List of Figures

Chapter 1 – Introduction

The Jot-em-Down Shelter (15McY348) is located on the eastern edge of the Lake Cumberland Section of the Upper Cumberland Management Area. That portion of the Lake Cumberland Section lies within the rugged Cumberland Plateau, which is the westernmost section of the broader Appalachian Mountain system, "a maturely dissected area underlain by Pennsylvanian sandstones, shales, and coal" (Pollack 2008:17). The plateau is "characterized by a nearly level to undulating upper surface dissected by deep, narrow, steep-sided valleys" (McGrain 1966:7).

Generally, the area around Jot-em-Down consists of narrow ridges, steep hill sides, and V-shaped valleys. Sandstone rock outcrops and overhangs are present along the side slopes near the heads of drainages. Roaring Paunch Creek lies to the east of the shelter, and flows north/northwest toward the South Fork of the Cumberland River.

Jot-em-Down was excavated in the summer of 1986 by Forest Service archaeologists Gary Knudsen and Cecil Ison. A report of the excavation was never completed, and the artifacts collected remained on the Stearns Ranger District. The analysis of the lithic artifacts recovered during the excavation form the basis of this thesis. The analysis of the artifacts was patterned after Sussenbach (1997) and Boedy (2001). A total of 2,336 artifacts was analyzed.

Rockshelters in Kentucky

Rockshelters are one of the nineteen site types listed by Stackelbeck and Mink (2008). They are defined as "any utilized natural rock overhang" that "are usually habitation areas and often contain thick midden deposits, human burials, and a wide variety of cultural materials" (Stackelbeck and Mink 2008:29). The dry environments found at

rockshelters provide for the preservation of perishable artifacts, such as textiles, plant and animal remains, and wooden tools.

Rockshelter sites have been recorded in each of the seven management areas defined in the archaeological state plan (Pollack 2008). However, the largest percentages of rockshelters occur in the Upper Kentucky/Licking and the Upper Cumberland Management Areas. Forty percent of recorded sites in the Upper Kentucky/Licking Management Area and nearly thirty-six percent of sites in the Upper Cumberland Management Area are rockshelter sites (Stackelbeck and Mink 2008). Although in comparison to other management areas, few sites have been excavated in either of these two management areas, work conducted in the Upper Kentucky/Licking Management Area has led to discoveries of early plant domestication in the Gorge Section. The following is a synopsis of rockshelter research in Kentucky.

Rockshelter Research in Kentucky

Three phases of archaeological research have occurred in Kentucky. The first phase was the 1920s and 1930s work that was conducted by University of Kentucky professors William S. Webb and William D. Funkhouser. The second phase was in the 1960s and 1970s and consisted of work carried out for proposed reservoirs under the Federal River Basin Salvage Program. The third phase started in the 1980s and continues through today. Surveys and excavations are conducted to comply with federal legislation passed in the 1960s and 1970s. The following overview will summarize rockshelter research specifically.

As mentioned above, the first phase of archaeological research conducted in Kentucky was in the 1920s and 1930s. Research was headed by University of Kentucky professors

William S. Webb, physicist, and William D. Funkhouser, zoologist, who conducted archaeological investigations as a sideline. "Though criticized for their lack of stratigraphic controls and field documentation, Webb and Funkhouser were instrumental in the early years of Kentucky archaeology because they recorded dozens of prehistorically occupied rockshelters and made known the preservation potential of these locations" (Applegate 1997:42).

Their findings were documented in a series of reports (Funkhouser and Webb 1928, 1929, 1930; Webb and Funkhouser 1932, 1936). Their first report in 1928 contained a chapter entitled "Cliff Dwellers" in which they described the populations utilizing rockshelters. While the cliff inhabitants were not considered a separate race, it was noted that "still there are certain peculiarities in their artifacts, certain differences in their artifacts, certain differences in their skeletons, and without question indications of certain unusual customs and practices which set them off from the other groups" (Funkhouser and Webb 1928:143). These differences included burials, hominy holes, and "kitchen-midden" deposits.

Funkhouser and Webb published reports on rockshelter excavations in Lee County (1929), and Wolfe and Powell Counties (1930). In Lee County, they conducted archaeological research at six rockshelters. The most important of those six were Red-Eye Hollow, Little Ash Cave, and Big Ash Rock House. These "so-called ash caves" contained well-preserved, normally perishable non-carbonized artifacts including fabric, cordage, wood, gourds, and leather (Funkhouser and Webb 1929).

The following year the results of excavations at rockshelter sites in Wolfe and Powell County were published. The most important sites were the Dillard Stamper Rockshelters No. 1 and No.2, and the Steven DeHart Rockshelter (Funkhouser and Webb 1930).

In 1932, Webb and Funkhouser published the results of their county surveys. For these surveys, they relied on the help of local informants in each of Kentucky's 120 counties to visit and document known archaeological sites. They recorded information for 1,255 sites, 108 of which were rockshelters.

Webb and Funkhouser (1936) investigated eleven rockshelters in Menifee County. The most important shelter was Newt Kash Hollow Shelter. Archaeobotanical evidence was recovered from the shelter and studied by Volney Jones (1936). He identified prehistoric maize, goosefoot, warty squash, sunflower, sumpweed, and maygrass. "The Newt Kash materials provided further evidence for a prehistoric agricultural tradition" (Mickelson 2002:48).

The last significant work in this time period was carried out in 1939 by William G. Haag. He conducted excavations at Hooton Hollow Shelter in Menifee County. He utilized more stringent field methods, kept detailed notes, and produced maps. However, the excavations records have been lost. Only two reports have been produced from specimens recovered at Hooton Hollow, an inventory of lithic tools (Purrington 1967) and a study of human paleofecal material (Gremillion 1995a).

The second phase of archaeology occurred from 1964-1977 as the result of federally mandated reservoir basin surveys. Due to public outcry and lawsuits filed by environmental groups and private citizens, most of these surveys were conducted for the proposed Red River Lake. Five important surveys occurred in the area between 1966 and

1977 (Fryman 1967, Cowan 1975, Cowan and Wilson 1977, Turnbow 1976, and Wyss and Wyss 1977). Two hundred seventy-five sites were recorded during those surveys. Several were rockshelters sites, the most important ones were Haystack and Rogers in Powell County and Cloudsplitter in Menifee County.

Research at Cloudsplitter revealed adaptation to climate and subsistence by inhabitants of the shelter from the Early Archaic period through the Early Woodland period. "The Early Woodland occupants of the shelter exploited many kinds of seeds, including sunflower, sumpweed, maygrass, and erect knotweed. This plant use pattern contrasts strongly with that of the Late Archaic inhabitants of Cloudsplitter, who depended heavily on nuts and used few cultivated plants other than squash" (Railey 1996:87).

Excavations and subsequent research by Cowan (1974, 1975, 1978, 1979a, 1979b, 1997) at Haystack and Rogers Rockshelters produced evidence of cultigens from the Woodland period. Black walnut and wild fruits, goosefoot, maygrass, sumpweed, sunflower, squash, and gourd were recovered from Haystack Rockshelter (15Po47B), and sunflower, sumpweed, goosefoot, maygrass, and cucurbit macrobotanical remains were collected at Rogers Shelters (15Po26 and 15 Po27) (Applegate 2008).

The third phase of rockshelter research in Kentucky started in the 1980s and continues through today. Cultural Resource Management (CRM) projects are conducted to comply with federal legislation passed in the 1960s and 1970s. The surveys and excavations conducted as a result of CRM practices have brought about some important rockshelter research, especially in the Upper Kentucky/Licking Management Area. Since the late 1980s, research on the origins of plant domestication and food production has been

conducted at Cold Oak Shelter (15Le50) (Gremillion 1993a, 1995b, 1998; Ison 1988; O'Steen et al. 1991), Newt Kash Hollow Shelter (15Mf1) (Gremillion 1995a, 1997; O'Steen et al. 1991; Turnbow 1981), Hooten Hollow Shelter (15Mf10) (Gremillion 1995a), and Military Wall Rockshelter (15Po282) Schlarb and Pollack 2002) (Applegate 2008).

Cold Oak is best known for perishable artifacts recovered from dry Early Woodland deposits (Applegate 2008). Cultivated plants representing early horticulture at the site include sunflower, sumpweed, goosefoot, maygrass, knotweed, ragweed, amaranth, squash, and bottle gourd (Gremillion 1993a, 1995b, 1998; Ison 1988; O'Steen et al. 1991). The research at Cold Oak supported the hypothesis that although Late Archaic hunter-gatherers initiated plant husbandry, it was not a significant food source until after 1000 B.C. (Gremillion 1999:36).

The early work of Jones (1936) and the later research of Gremillion (1995a, 1997), identified plant cultigens from feature, midden, and/or paleofecal samples collected at Newt Kash. Cultigens included sunflower, sumpweed, goosefoot, maygrass, giant ragweed, bottle gourd, fleshy squash, maize, and tobacco (Applegate 2008).

As mentioned above, Gremillion (1995a) conducted a study of human paleofecal material from the Hooten Hollow Shelter that had been excavated by Haag in 1936. She found that occupations at the site spanned the Woodland and Fort Ancient periods with the most use being during the Early Woodland period. Cultigens noted from the specimens included sumpweed, goosefoot, and giant ragweed.

Research at Military Wall Rockshelter showed that it was utilized primarily during the Late Archaic and Early Woodland periods. "The site was used primarily as a locus for

plant processing including various nuts, fleshy fruits, and seeds" (Applegate 2008:502). Cultigens recovered from the site included goosefoot, sunflower, marsh elder, and erect knotweed (Schlarb and Pollack 2002).

Comparative Research

Research conducted in the Upper Cumberland Management Area that relates to the Jot-em-Down research includes investigations at two open sites in McCreary County (15McY570 and 15McY616) (Sussenbach 1997), investigations at rockshelter sites Big Shelter (15Ll88), Rising Sun Shelter (15Ll89), and Groovey Shelter (15Ll90) in Laurel County (Carmean 1994; Carmean and Sharp 1998), and the excavation of two rockshelter sites in McCreary County (15McY403 and 15McY409) (Boedy 2001).

Research conducted in the Upper Kentucky/Licking Management Area that relates to research at Jot-em-Down includes the lithic study of Cold Oak Shelter (15Le50) and Rock Bridge Shelter (15Wo75) (Applegate 1997), and the investigations conducted by Sharp et al. (2001) on the Burnt Road Site (15Ja239) and associated rockshelters, and Phase II testing of two open sites, Skeeter Mudhole (15Ja305) and Intersection Saddle (15Ja154), and Diesel Can Shelter (15Ja242).

Information gathered from the lithic analysis was used for intrasite comparisons between the three test units at Jot-em-Down. Utilizing the same debitage categories as defined by Sussenbach (1997) also made it possible to make intersite comparisons between Jot-em-Down and two open sites, 15McY570 and 15McY616, and two rockshelter sites, 15McY403 and 15McY409. This comparison provides a broader picture of local, prehistoric activities. For insights into regional patterning, the analysis of Jot-em-Down lithics was compared to Applegate's (1997) lithic analysis at

rockshelters, 15LE50 and 15WO75, as well as Carmean and Sharp's conclusions from their investigations at 15Ll88, 15Ll89, and 15Ll90, and the results of investigations completed by Sharp et al. (2001).

Information gained from the lithic analysis of the Jot-em-Down assemblage and compared to the research mentioned above broadens the understanding of prehistoric adaptations in this part of the Cumberland Plateau that is located in the Upper Cumberland Management Area, Lake Cumberland Section. Comparisons to other rockshelters, as well as open sites, provide information on settlement patterns. The utilization of raw materials gives insight into human mobility. Additionally, the tools and debitage provided information on the type of manufacture and maintenance of lithics that occurred at the shelter. This information shed light on the activities being carried out at the shelter, as well as the change in activities through time.

Chapter 2 - Research Objectives

The primary objective of the analysis completed on lithic artifacts recovered from Jot-em-Down (15McY348) can be used to answer three research questions. First, lithic data from local sites 15McY403 and 15McY409 can provide comparative information on rockshelters in the vicinity of Jot-em-Down. Data from two nearby open sites, 15McY570 and 15McY616 can also be compared to Jot-em-Down data. This information, coupled with that from other nearby sites (Carmean and Sharp 1998; Sharp et al. 2001) will allow for the examination of settlement patterns along the Cumberland Plateau.

Secondly, chert types identified can give insight into mobility and raw material preferences of the inhabitants of Jot-em-Down. Sussenbach (1997) found that groups with access to chert resources to the west used local chert differently than groups without access. If nonlocal cherts are present at Jot-em-Down, it may suggest something about the mobility or preferences of the groups using the shelter.

The last research objective is to discern what types of tool manufacturing or maintenance activities occurred at Jot-em-Down. This can help determine site function. Tool types and the chert variables debitage-to-tool ratio, percentages of debitage representing each reduction stage, and percentages of debitage utilized can help answer this question.

All data collected will be compared to local (15McY570, 616, 403, and 409) and regional sites (15LE50 and 15WO75). These comparisons will give insight into how Jot-em-Down fits into what is known about settlement patterns, raw material utilization and site function within the Cumberland Plateau.

Chapter 3 - Investigations at Jot-em-Down Rockshelter

Survey/Site Discovery

The Jot-em-Down Shelter (15McY348) was discovered during survey by Forest Service archaeologists on February 7, 1984 (Figure 3.1). The description in the site form stated:

> This rockshelter is large and located in a curving sandstone cliff. The site measures 50 m x 8 m x 10 m. The north end is covered with large roof fall. All portions of the site have been disturbed by pot hunting particularly along the backwall and the talus slope near the north end. Disturbance amounts to about 60 percent of the site's surface. Soils are gray to black, ashy sand to a depth of 50 cm minimum. Front part of the site is damp from drip while the back portion is dry. Cultural material consisted of ceramics, bone and 1 chert flake. The ceramics are diagnostic of Woodland cultural period (Knudsen 1984a).

At the time of survey, twenty-five artifacts were recovered. They included fifteen pieces of faunal material, seven ceramic sherds, and one lithic flake. Prehistoric materials observed but not collected included charcoal flecks and faunal material. The closest water source was an unnamed feeder of Roaring Paunch Creek located approximately 50 m northeast and down slope from the shelter. Knudsen (1984b) recommended that the site be tested to determine if there were still intact deposits present despite the sixty percent disturbance.

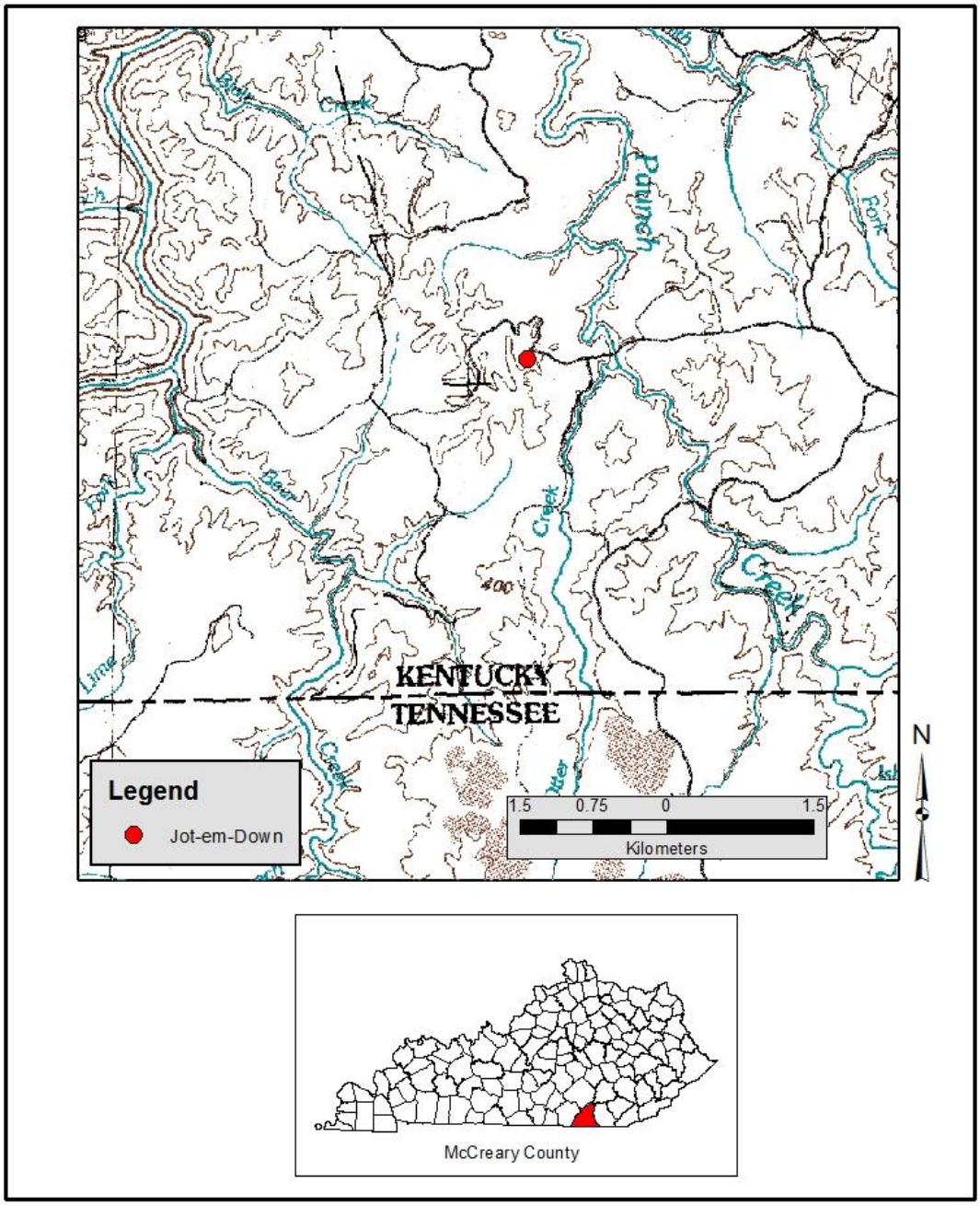

Figure 3.1: Location of Jot-em-Down.

Excavation

In 1986, the shelter was excavated by Forest Service archaeologists Gary Knudsen and Cecil Ison as part of the procedure for a land exchange. The site description prior to excavation follows:

> …the floor is covered with numerous sandstone boulders. Outside the dripline the hill slopes rapidly in front of the portion containing the rocks but is more gentle on the southern end. Access to ridgetop is easily gained from north end via a well-travelled path. The cliffline ends with the shelter. …Outside the dripline, excluding the backdirt piles, on the south end there is a gradual slope ~10 percent down to the ravine that runs SW from the spring situated about 15 m south of the north end (Ison 1986).

The spring described in the excavation field notes is approximately 3 m below the shelter. Although, not mentioned in the initial site form, this was probably the water source for the inhabitants of the shelter.

Vegetation noted at the site included hemlock, holly, pine, poplar, oaks, maples, dogwood and mountain laurel. Species growing in looter holes, backdirt piles and the dripline included mullen, ferns, dwarf irises and grasses.

Three excavation units were dug in arbitrary 10 cm levels (Figure 3.2). Test Unit (TU)1 was 1 m x 3 m and extended from inside the shelter to outside the dripline. It was dug to a depth of 130 cm below datum (bd). Test Unit 2 was 1 m x 3m and Test Unit 3 was 1 m x 2 m. These units were placed inside the shelter and dug to depths of 120 cm bd and 130 cm bd, respectively. In all, 8 square meters were excavated at the site. Unit and level non-lithic artifact distribution is presented in Table 3.1. It should be noted that the tract of land was never exchanged and the shelter is still on National Forest Lands.

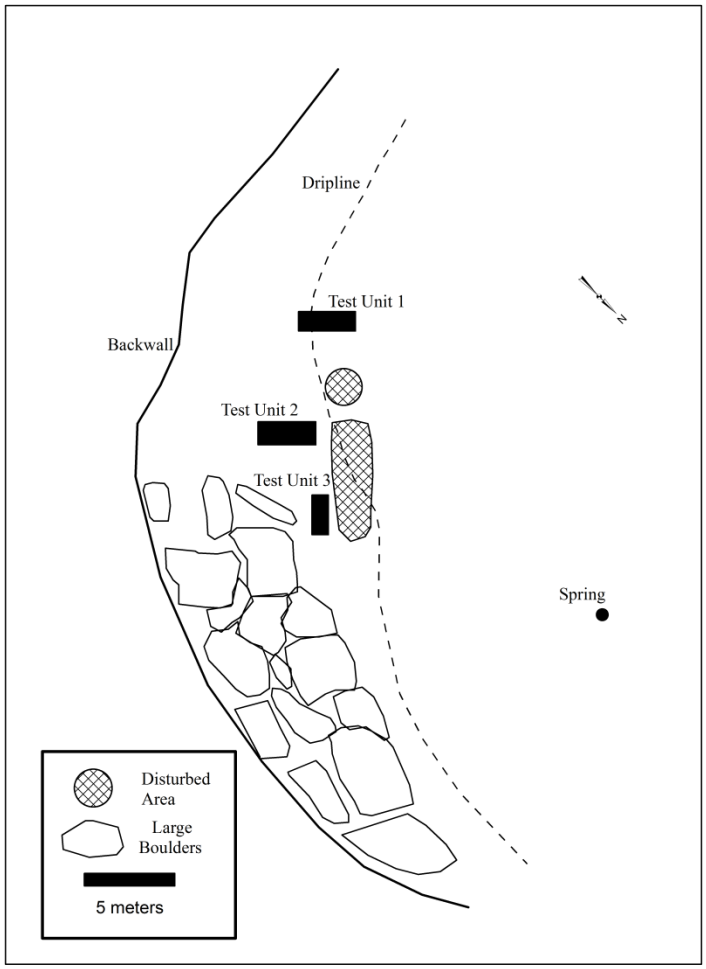

Figure 3.2: Sketch map and picture of test units. (Photo by Cecil Ison)

Table 3.1: List of non-lithic artifacts collected.

Test Unit	Ceramics	Faunal	Charcoal (g)	Mussel Shell	Hickory Nuts	Prehistoric Misc.	Historic/ Modern
TU1, L1	-	4	-	-	-	-	-
TU1, L2	1	20	-	-	-	-	-
TU1, L3	-	82	0.3	1	-	-	-
TU1, L4	2	374	2.2	1	5	worked bone	-
TU1, L5	4	312	12.55	1	1	-	1 cig filter
TU1, L6	10	182	1.4	-	1	-	1 cig filter
TU1, L7	-	28	5.1	-	-	-	-
TU1, L8	-	8	1.65	-	-	-	-
TU1, L9	1	-	-	-	-	-	-
TU1, L10	-	-	1.1	-	-	-	-
TU1, L11	-	-	-	-	-	-	-
TU1, L12	2	1	-	-	-	-	-
TU1, L13	1	-	-	-	-	-	-
TU1, L14	-	-	-	-	-	-	-
TU2, L1/L2	2	20	-	4	-	-	1 plastic bottle cap and 1 cig filter
TU2, L3	5	70	-	-	-	worked antler tine mica plate	6 pull tabs and 1 cig filter

Table 3.1 (continued)

Test Unit	Ceramics	Faunal	Charcoal (g)	Mussel Shell	Hickory Nuts	Prehistoric Misc.	Historic/ Modern
TU2, L4	8	148	-	3	-	fired clay bone awl worked bone	1 pull tab
TU2, L5	8	58	-	-	-	-	-
TU2, L6	1	29	-	-	-	bone awl	plastic 6 pack holder
TU2, L7	3	2	-	-	-	-	-
TU2, L8	-	-	-	-	-	-	-
TU2, L9	-	-	-	-	-	-	-
TU2, L10	-	-	-	-	-	-	-
TU2, L11	-	-	-	-	-	-	-
TU2, L12	-	-	-	-	-	-	-
TU3, L1	15	130	-	1	-	worked bone fired clay (2) 2 mica plates	1 bottle cap 1 .22 caliber shell casing 2 cig filters
TU3, L2	5	69	-	-	-	bone awl 2 mica plates	1 jar lid 1 .22 caliber shell casing

Table 3.1 (continued)

Test Unit	Ceramics	Faunal	Charcoal (g)	Mussel Shell	Hickory Nuts	Prehistoric Misc.	Modern/ Historic
TU3, L3	6	112	-	-	-	cut bone fragment	2 12-gauge shotgun shell fragments and 1 brown glass fragment
TU3, L4	2	189	-	-	-	-	-
TU3,L5	5	174	-	1	1	worked bone hematite concretion	1 .22 caliber shell casing and 1 brown glass fragment
TU3, L6	3	165	-	-	-	limestone chunk	1 cast iron metal fragment
TU3,L7	1	95	3.0	-	-	unidentified charred organic sample unprocessed charcoal sample	-
TU3, L8	-	-	7.5	-	-	-	-
TU3, L9	-	-	8.7	-	-	-	-
TU3, L10	-	-	52.2	-	-	-	-
TU3, L11	-	-	16.9	-	-	-	-
TU3, L12	-	-	-	-	-	-	-
TU3, L13	-	-	-	-	-	-	-
TOTALS	**85**	**2,272**	**111.7**	**12**	**8**	**21**	**25**

Test Units

Test Unit (TU) 1 was a 1 m x 3 m unit with the long sides extending north – south (Figure 3.3). It was placed partially outside the dripline and inside the shelter "in order to provide a profile of this area of the shelter" (Knudsen 1986). The surface at TU 1 appeared intact, but there was existing backdirt above the shelter floor. The unit was excavated in arbitrary 10 cm levels. Level 11 was excavated before a break in work between June 12, 1986 and July 7, 1986.

During the break, vandals entered the shelter and damaged the unit. They dug about 10 – 15 cm into the walls in the southeast corner of the unit. They also extended the unit by approximately 30 cm to the east and completely caved in the east wall. A new datum was established and the unit was dug to Level 15. However, Level 14 was the last level to yield artifacts, and that consisted of a single chert flake.

Figure 3.3: Test Unit 1, Gary Knudsen in photo. (Photo by Cecil Ison)

Due to the vandalism damage, only the west and north walls of TU 1 were profiled. The west wall had five soil zones (Figure 3.4). Zone 1 consisted of dark gray sandy soil with pea gravel and small rootlets, which appeared to be completely comprised of back dirt from illegal excavations. It was underlain by Zone 2, which consisted of tan sand mottled with white and orange sand. The zone contained some small rocks that were overlying Zone 3 and was the lower portion of the backdirt from previous illegal digging. Zone 3 represented an intact cultural zone and consisted of black sandy soil that contained charcoal fragments and large, possibly fire-reddened rock. Zone 3A was considered a continuation of Zone 3, but consisted of gray sand, large sandstone rocks, and charcoal flecks. Zone 4 was composed of orange sand with roots, rodent disturbance, and some charcoal flecking. Although some chert flakes were recovered from this zone, they were considered to be intrusive from upper levels.

The north wall soil zones were noted as "similar to those for the West Wall profile with a few specific variations" (Knudsen 1986). Zone 1 soils consisted of several episodes of excavation and backfill, especially toward the east end. Zone 1A represented a single backfill episode made up of dark black soil with small sandstone gravel. Zones 2 – 4 were the same as the zones noted in the east wall profile described above: an intact cultural zone of black sandy soil with charcoal and fire-reddened rocks overlying gray sand, large sandstone rocks, and charcoal flecks which were underlain by orange sand with roots, rodent disturbance, and some charcoal flecking.

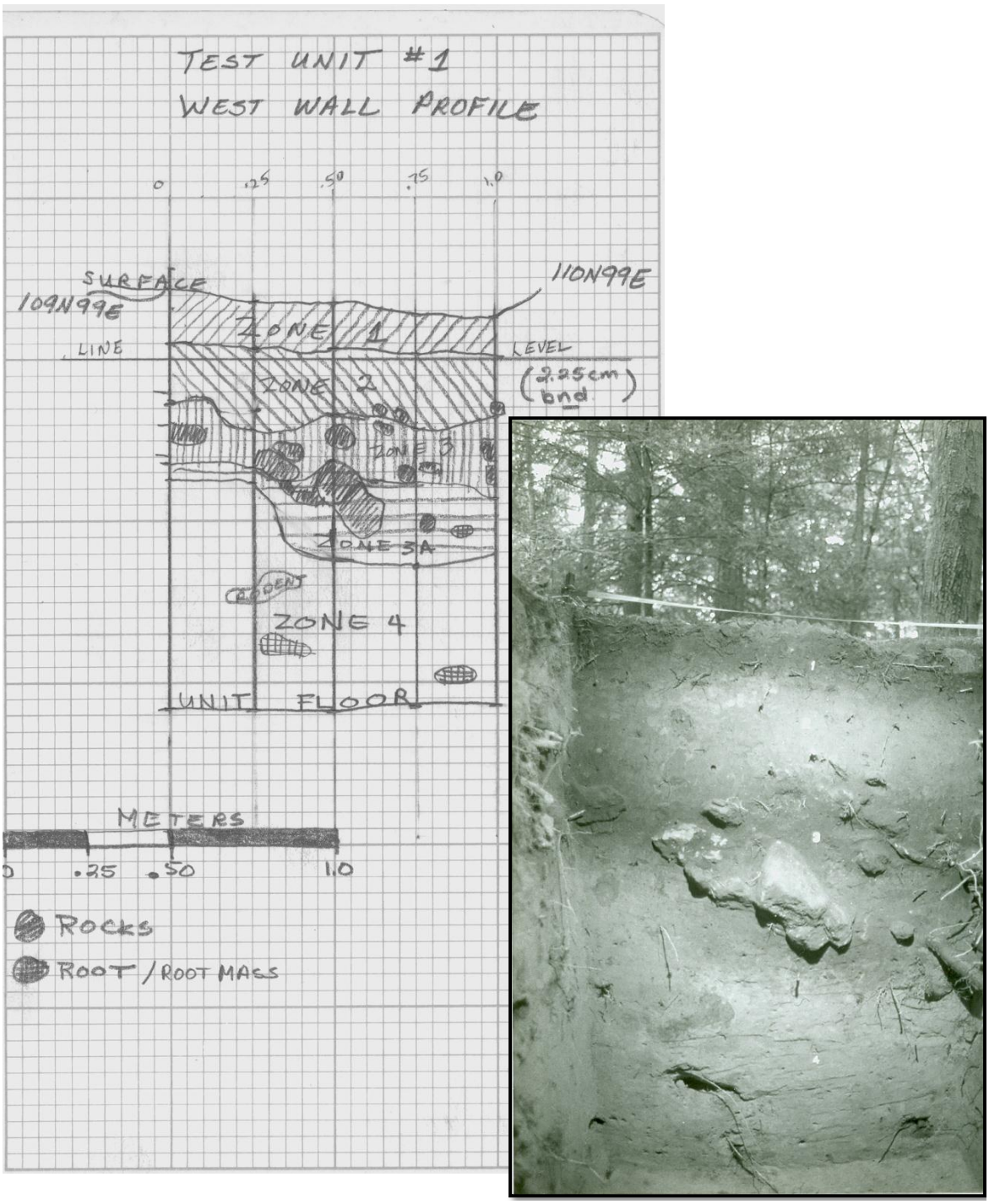

Figure 3.4: Test Unit 1, west wall profile. (Drawing and photo by Gary Knudsen)

Test Unit 2 was a 1 m x 3 m unit placed in the main occupation area of the shelter (Figure 3.5). It was approximately 3 m south of the roof fall which is located in the northern portion of the shelter. The unit was placed with the long sides running north – south. The east end was placed on the edge of an old looter hole and it was noted that the floor surface was "wavy", created by past digging (Ison 1986). Excavation was done in arbitrary 10 cm intervals and the datum was located at the southwest corner of the unit, which was the highest corner. The first two levels were dug together because they were believed to be disturbed deposits.

Figure 3.5: Test Unit 2, overall view. (Photo by Cecil Ison)

Intact deposits were not encountered until Level 4. They consisted of reddish brown sand. By Level 8, most of the TU had a rock bottom. However, in the western 2 m of the unit, it was possible to break through some of the decomposing sandstone and access a cultural layer beneath. One biface, two projectile points, a nut shell fragment, and several chert flakes were recovered from Levels 8 and 9 below the rock. Feature 1, a hearth, was

discovered on top of a boulder in Level 8. It contained loose, dark brown sand and damp charcoal, but no rocks. Excavation continued below Level 9, but was restricted to an area between bedrock which measured approximately 45 cm east – west by 1 m north – south. The unit was excavated to Level 12, but no artifacts were recovered below Level 9.

All four walls of the TU were profiled and contained three zones of soil. The north wall profile is shown in Figures 3.6. Zone 1 consisted of the disturbed soils from previous looter digging. The soil was a moderate brown silty loam with a mixture of prehistoric artifacts and modern trash. Zone 2 was pinkish-yellow sand that was encountered in the western portion of the unit below the rock that had been broken through. Zone 3 was culturally sterile soil below Zone 2 and consisted of pale yellow sand with charcoal flecks.

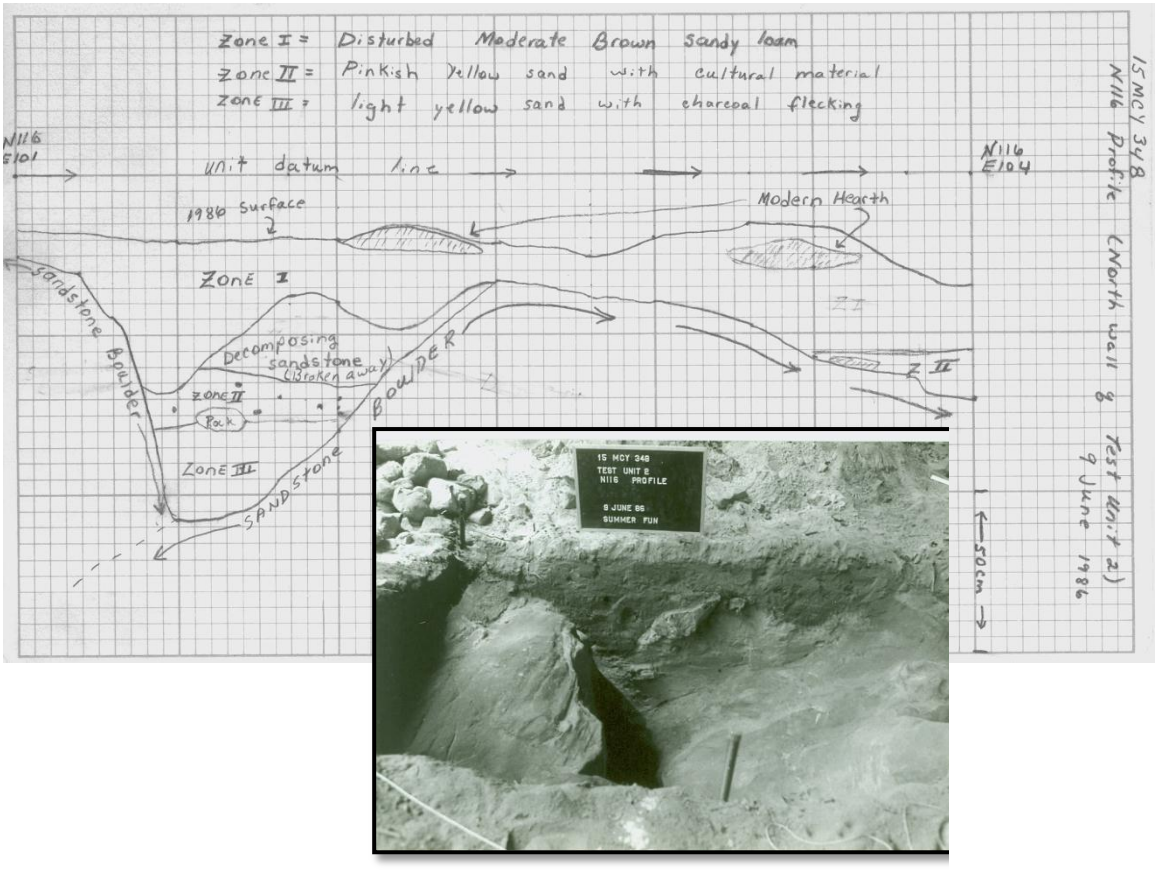

Figure 3.6: Test Unit 2, north wall profile. (Drawing and photo by Cecil Ison)

Test Unit 3 was a 1 m x 2 m unit that was placed approximately 2 m south of the large piece of roof fall (Figure 3.7). The long sides of the unit were oriented east – west and the western wall bordered a large looter trench. The datum was placed in the northeast corner of the unit. Unit fill was removed in arbitrary 10 cm levels.

Figure 3.7: Test Unit 3, overall view. (Photo by Cecil Ison)

When the excavation was vandalized during the three-week break in operations, TU 3 sustained damage to the east wall, large rocks were thrown into the unit, and the legs of the screen tripod were stuck into the floor. The damage was mitigated on July 7, 1986. However, on the night of July 8, 1986, vandals caused more destruction. The south wall was destroyed by digging, there was slumping along the east wall, and damage to the north wall caused by individuals climbing in and out of the unit.

The two 1 m x 1 m sections of TU 3 were dug separately. No intact deposits were encountered until Level 3 of the southern 1 x 1 was removed. Like TU 2, TU 3 had intact deposits buried below decomposing sandstone. These deposits were discovered in Level

6. Also like TU 2, the unit had to be excavated by digging around and between large boulders and other rocks. The unit was excavated to 130 cm b.d. (Level 13), but only one flake (missing from the collection) was noted from this level. Level 7 had the last significant amount of artifacts, although an expanding stem projectile point and chert flakes were recovered from Level 9.

The east and west walls of TU 3 were profiled and eleven soil zones were noted. Figure 3.8 shows the profile of the east wall. Zone 1 was a loose blackish brown backdirt deposit from illegal digging. It was noted that the location of TU 3 was in the area of the shelter with the most recent illegal disturbances. Zone 2 consisted of greyish brown sand that was also looter backdirt deposits. Zone 3 was comprised of tannish brown intact midden with charcoal flecking throughout. The soil in Zone 4 was a light pink sand layer with cultural material. Zone 5 was made up of a decomposing sandstone and sand layer that was culturally sterile. It was noted that the rocks were very fragile and easily disintegrated into the pink sand. Just below the sterile sandstone layer, Zone 6 was comprised of moderate brown to orangish-brown soil with artifacts and abundant charcoal. Zone 7 contained pinkish brown sand with lots of charcoal and some chert flakes. The change in soil to the yellowish brown sand with lots of charcoal found in Zone 8 was noted as a gradual transition. In Zone 9, the pinkish hue of sand disappeared and the frequency of charcoal fragments decreased. The soil in Zone 10 consisted of yellowish orange sand with occasional flecks. It was noted that most of the matrix of this zone was made up of large rocks. Zone 11 was comprised of pale yellow sterile soil.

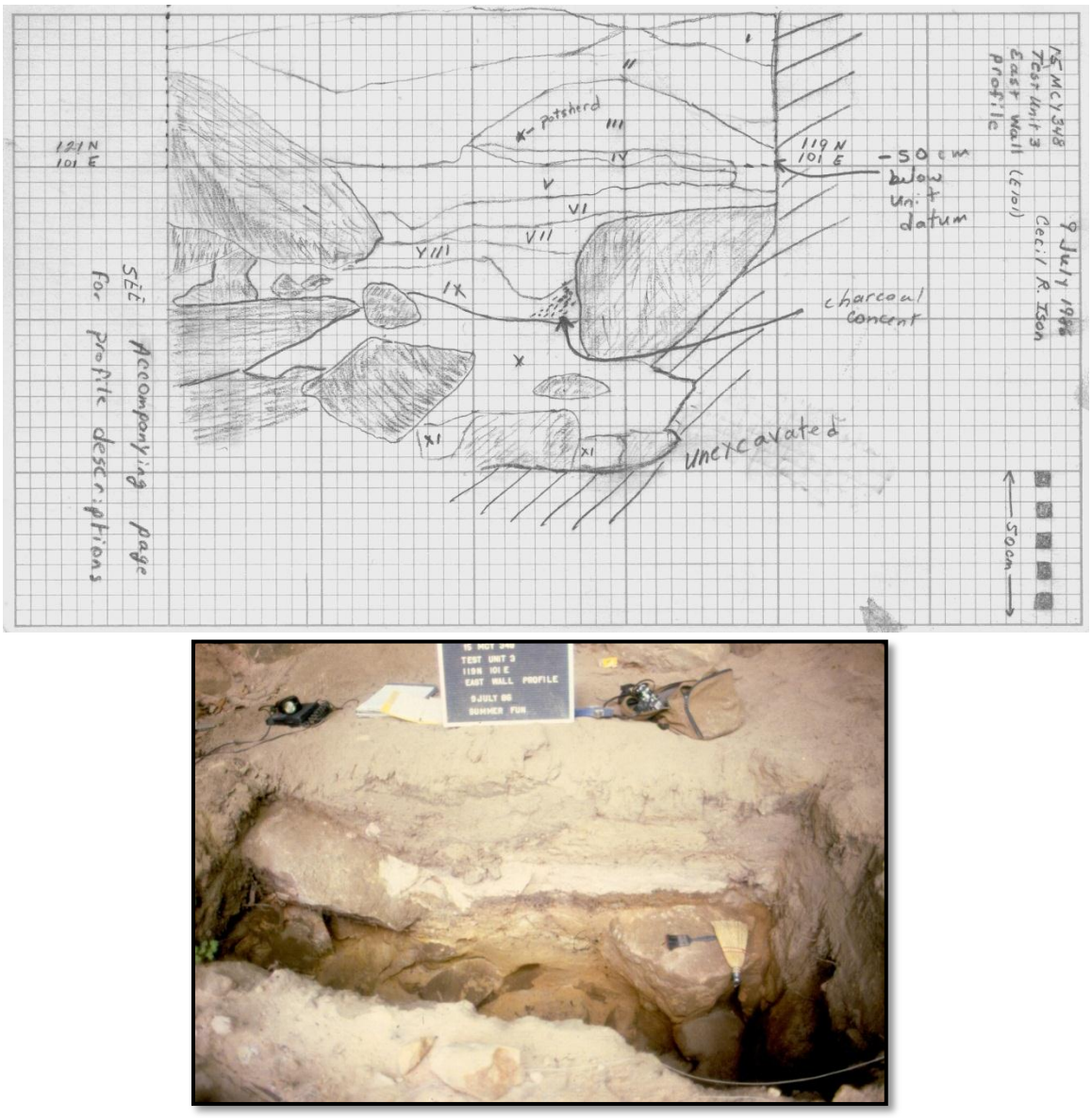

Figure 3.8: Test Unit 3, east wall profile. (Drawing and photo by Cecil Ison)

Chapter 4 - Materials Recovered

The artifacts recovered from Jot-em-Down Shelter during Phase II testing are described below. The categories include ceramics, faunal remains, worked bone, mussel shell, groundstone, limestone, sandstone, charcoal, historic/modern items, and miscellaneous objects. These items were washed and cataloged shortly after being recovered, and have been examined by the author. The lithic artifacts recovered during excavation were studied extensively and the results of that study are detailed in the next chapter.

Ceramics

The eighty-nine sherds collected during the excavation of Jot-em-Down Shelter, plus seven additional sherds collected from the surface when the site was first recorded, were analyzed and compared to another ceramic collection from a nearby rockshelter, Cap Knob Shelter (White 2011). The ceramics collected during excavations at the Jot-em-Down Shelter had previously been analyzed and cataloged. However, for consistency, the previous designations were not used when analyzing the sherds in 2011. All sherds were removed from their bags and analyzed by the author in March and April of 2011.

Specifically, three attributes were recorded for each sherd consisting of paste attributes, morphological attributes, and surface treatment. It was determined that one category from each attribute class would provide the most information to best compare the two collections. From the paste attribute analysis, temper was chosen. From the morphological attribute analysis, wall thickness was the only characteristic represented on all sherds. Surface treatment was also determined for all sherds. These three

attributes were used to further analyze and compare the ceramics from the two rockshelters.

For the collection of ceramics from Jot-em-Down, quartz was the predominate temper followed by limestone, quartz sand, shell, chert, and sandstone. It was not possible to identify temper in twelve of the sherds. The majority of Jot-em-Down sherds ranged in thickness from 5.0 to 8.9 mm. However, twelve sherds could not be measured. Surface treatment was fairly evenly divided between plain and cordmarked, with a slight advantage to plain. But, there were nearly as many sherds with surface treatment that could not be identified as there were in the two other categories. Data from the Jot-em-Down ceramics is provided in Appendix B.

Faunal

The animal bone collected from Jot-em-Down (n = 2,272) has not been studied. Test Units 1 and 3 have the most animal remains, 45 and 41 percent, respectively (Table 3.1). Test Unit 2 contained only 14 percent of the total faunal remains. One factor that may contribute to this is the fact that Test Unit 2 contained a lot of bedrock.

It should be noted that most of the bones in each test unit were collected from disturbed context. The amount of bone fragments excavated below modern debris, and thus considered intact deposits, was approximately 2 percent for TU1, 0.09 percent for TU2, and 4 percent for TU3. Further study of the faunal data would provide data on the types of animals utilized by the inhabitants of the shelter.

Worked bone

Worked or utilized bone was recovered from each test unit. Test Unit 1 produced one specimen and Test Units 2 and 3 yielded four each. Three of the pieces were bone awl

fragments. Two antler tines and one bone fragment that was ground into a point also may have been used as an awl. Of the three additional bones, two showed evidence of being cut, but their use is unknown. The last fragment has a flat side that has been worn smooth and exhibits scrape marks. It is not clear how this fragment was utilized.

Mussel shell

Mussel shell was collected from each test unit. Test Unit 2 contained the most (n=7), although it should be noted that all the shell in the collection is from levels with disturbed deposits. All test unit levels which contained mussel shell also contained historic/modern artifacts.

Most of the mussel shell collected during excavation is fragmentary and species identification is not possible. One specimen from Test Unit 2, Levels 1 and 2, does exhibit intact hinge teeth which may allow for identification, but no malacologist was consulted. The presence of mussel shell at the site suggests that mussels may have been part of the diet of the inhabitants. It also suggests that mussel shell was present and available for temper in the ceramics.

Groundstone

Two groundstone artifacts were recovered from Test Unit 1. In Level 5, a groundstone flake was recovered. There is one smooth surface on the artifact and along that edge there is evidence of utilization. The flake weighs 1.6 grams. A small groundstone fragment weighing 1.5 grams was collected from Level 6. One edge has been rounded and smoothed. This may represent a pendent fragment.

Limestone

A wedge-shaped fragment of limestone was collected from Test Unit 3, Level 6. It weighs 6.4 grams and measures 22.3 mm wide and 28.3 mm long. The widest edge measures 7.1 mm thick and the thinnest edge is 1.3 mm thick. The usage of this artifact is not clear.

Sandstone

Two sandstone artifacts were collected; both from Test Unit 2. A small, thin piece was recovered from Level 3. It was smooth, and one edge was thinned and rounded. It was 6 mm thick, and that was the only measurement possible.

The second piece was recovered from Level 9. It was a small, thick chunk that was worn smooth on two sides. It measured 97 mm long by 90 mm wide by 50 mm thick. The excavators noted that the object was different than other sandstone found in the shelter. The recovered piece had small even-sized quartz particles, whereas other sandstone in the shelter had larger quartz particles.

Charcoal

Charcoal (112.6 g) was collected from Test Units 1 and 3, with the most (79 %) coming from intact levels of Test Unit 3. Carbon 14 samples were collected and analyzed from each test unit. The results are in Table 4.1 below. An additional charcoal sample, collected from Test Unit 3, has not been processed.

Table 4.1: Chronometric Dates.

Lab. Number	Provenience	Age (B.P.)	Calibrated Date
Beta-17153	TU 2, L8	3060 ± 70	1490-1120 BC
Beta-17154	TU 1, L7	1970 ± 80	170 BC-AD 220
Beta-17155	TU 3, L7	3060 ± 80	1500-1060 BC

Historic/Modern

The items in this group are representative of trash items left behind by modern visitors and/or looters. All the items were collected from disturbed context and there was nothing found that would suggest any sustained or significant historic use of the shelter. The items and quantities are listed in Table 4.2.

Table 4.2: Historic/Modern Artifacts.

Item Collected	Quantity	Notes
Cigarette filter	6	
Plastic bottle cap	2	
Pull tabs	7	Replaced with Sta-Tabs in late 1970s
22 caliber bullet casing	3	
12-gauge shotgun shell fragments	2	
Plastic 6-pack holder	1	
Jar lid	1	
Brown glass fragment	2	
Cast iron metal fragment	1	

Miscellaneous Prehistoric

Artifacts in this category represent prehistoric items that were collected from Test Units 2 and 3. All were recovered from disturbed deposits within the test units. No analysis has been conducted on the items. They are listed in the Table 4.3 below. Although included as miscellaneous prehistoric in Table 3.1, the nine specimens of worked bone collected from the test units, and the unprocessed charcoal sample from Test Unit 3 are described above. They are not included in Table 4.3.

Table 4.3: Miscellaneous Prehistoric Artifacts.

Item Collected	Quantity	Notes
Mica plates	5	
Small fired clay chunks	3	
Hematite concretion	1	
Limestone	1	
Unidentified charred organic	1	

Chapter 5 - Lithic Analysis

"Because lithic artifacts do not degrade easily, they are arguably the most abundant artifact type found on ancient archaeological sites in most parts of the world" (Andrefsky 2009:65). However, for years the debitage known as "waste flakes" received little, if any, consideration and analyses that were conducted were often not standardized or replicable. These problems have been addressed and disputed by researchers, but no standards for lithic analysis have ever been set. However, there are three general categories of lithic analysis conducted: 1) aggregate or mass analysis, 2) debitage typological analysis, and 3) attribute analysis.

In the first category, aggregate or mass analysis, the entire debitage collection is stratified by some uniform criteria used to compare the relative proportions of debitage in each stratum (Andrefsky 2001). The technique employs "weights or frequencies obtained by screening the collection through a series of differing mesh sizes" (Odell 2003:133). This screening produces size grades that can be associated with reductive episodes of core reduction or tool production. Debitage will continue to get smaller as an artifact is produced, so size grading helps determine what stages of production were most prevalent at a site. The weights of particular-sized debitage can also give insight into the predominance of artifacts from a certain stage of tool production. Larger debitage will have larger proportions of weight early in tool production, just as smaller debitage will have larger proportions of weight late in tool production (Morrow 1997).

Debitage typologies organize flakes into types with some kind of technological or functional meaning. The researcher usually decides the categories he or she wants to use, with the groupings providing evidence for such information as to how the chert flakes

were produced (percussion or pressure), what stage of production they were removed from the larger rock, what artifact was produced, or what technology was used to produce the artifact (Andrefsky 2001). The trouble with defining one's own typology is that it can be hard to validate or replicate. In an attempt to provide interpretation-free categories and standardize types, Sullivan and Rozen (1985) proposed a system of only four categories: complete flake, broken flake, flake fragment, and debris. However, the system was controversial (see Amick and Mauldin 1989; Rozen and Sullivan 1989a, 1989b; Ensor and Roemer 1989).

Attribute analysis consists of selecting and recording debitage characteristics that can be examined across an entire assemblage (Andrefsky 2001). The two main characteristics identified in attribute analysis are striking platform morphology and dorsal cortex amounts. Platform morphology is helpful in determining the type of instrument used in tool manufacturing, the type of tool being manufactured, and the stage of production. Dorsal cortex amounts are used to predict reduction stages during tool production.

The analysis conducted by Sussenbach (1997) on lithics from open sites 15McY570 and 15McY616 was a combination of mass and typological analyses. Although typologies are often not easily replicable, the categories described and used by Sussenbach were well defined and used in the analysis of lithics from the Jot-em-Down Shelter.

The Jot-em-Down Shelter was not unique in that the majority of artifacts collected during excavation consisted of chert flakes. The lithic artifacts collected from the excavation had previously been washed, analyzed, and cataloged. The initial categories

for the lithics included projectile points, drills, modified flakes, prismatic blades, end scrapers, biface fragments, and debitage. Debitage was further broken into categories including, primary, secondary, and waste flakes, and chunks. These artifacts were reanalyzed and placed into categories that allowed for comparisons with the results of analysis of sites 15McY570 and 15McY616 (Sussenbach 1997). The following is a description of the analysis and the definition of the categories used for this thesis.

Laboratory Methods

All lithic artifacts from the Jot-em-Down Shelter (15McY348) were separated from the other artifacts collected during excavation and kept grouped together by excavation unit and level. The lithics were removed from the plastic bags used to group them in the original analysis. Each test unit level of lithics was sized graded by passing them through a series of screens measuring 1", 1/2", and 1/4" (25.4, 12.7, and 6.4 mm). Artifacts smaller than 1/4" were collected in a screen measuring 1/8", were bagged and labeled as debitage, but were not analyzed further.

The three size grades were then categorized according to artifact classes and particular attributes. Information recorded during analysis included screen size, artifact type, chert type, presence or absence of cortex, presence or absence of utilization, presence or absence of heat exposure, and weight and number of artifacts in each category.

Screen Size

All lithic artifacts were passed through a series of nested hardware mess screens measuring 1", 1/2", and 1/4" (25.4, 12.7, and 6.4 mm). Regardless of the classes and attributes, the artifacts were kept separated by sizes throughout the rest of the analysis.

Artifact Type

The artifacts were separated into the following categories: bifaces, unifaces, and flakes. Bifaces were further divided into early-stage or late-stage. Chert flake categories included primary, secondary, interior, bifacial thinning, fragments, and angular. Chert flakes were further sorted by three attributes, presence or absence of cortex, evidence of utilization, and evidence of exposure to heat. After sorting and grouping, each category with certain attributes from each level was placed in a plastic bag and weighed. The following is a description of each artifact type.

Bifaces

Bifaces are chert artifacts that display negative flake scars on both sides, or faces, producing sinuous lateral margins (Sussenbach 1997:28). The category includes tools at various stages of production, and is subdivded into early and late-stage bifaces. Early-stage bifaces consist of preforms, or artifacts that require further thinning or reduction to prepare them for use. Late-stage bifaces represent artifacts that have been thinned and modified to the extent that they are finished tools. All projectile points and projectile point fragments were categorized as late-stage bifaces.

Unifaces

These artifacts display negative flake scars on only one side. The artifacts are usually used for cutting or scraping.

Debitage

The debitage categories utilized in this study were those described and used by Sussenbach (1997). The categories were also used by Boedy (2001). They are as follows:

> *Primary flakes* have cortex completely covering their dorsal surfaces and platform angles of approximately 90 degrees. These flakes are removed during the earliest portion of the reduction sequence. *Secondary flakes* have some cortex present on their dorsal surfaces and platform angles of nearly 90 degrees. They are also detached relatively early in the reduction sequence. *Interior flakes* have approximately 90 degree platform angles, but lack cortex on their dorsal surfaces. Some interior flakes have cortex on their platforms, while others do not. These interior flakes are typically produced during a middle stage of biface reduction sequence, especially in instances where a square edge on a biface is being thinned. They may also be produced during production of unifaces. *Biface thinning flakes* are flakes with acute, lipped or multi-facetted platforms, indicating their removal during the thinning of bifaces. They are produced during the middle to late-stages of bifacial reduction and during resharpening of bifacial tools… *Flake fragments* lack a platform and are not assignable to any other category. *Angular fragments…*lack flake characteristics. This category consists of blocky fragments lacking platforms, percussion rings, or other flake attributes (Sussenbach 1997:28-29).

Debitage Attributes

Each debitage category was grouped by three attributes; cortex, utilization, and heat exposure. Artifacts were inspected with the help of a magnifier lamp and a 10X hand lens. Cortex was noted as either absent or present. The amount of cortex was used to distinguish primary flakes from secondary flakes. Cortex was noted on some artifacts from all debitage categories. Debitage was classified as utilized if flake scars were noted along one or more edges. Artifact exhibiting areas of heat spalling, or potlids, were classified as being exposed to heat. Debitage without spalling was classified as not being exposed to heat.

Chert Types

Seven types of lithic raw materials were identified in the artifact assemblage from Jot-em-Down. Three were local: Monteagle and Knox cherts, and chalcedony. The

additional four were non-local cherts: Fort Payne, Haney, Breathitt, and Boyle. There was also some unidentifiable chert in the assemblage. The following is a description of the lithic raw materials found at Jot-em-Down, and. Figure 5.1 follows the descriptions and shows the general source location of the chert types.

Monteagle Chert

This chert type is named for the Monteagle Limestone Member that is part of the Mississippi strata exposed throughout most of the Little South Fork drainage. However, this chert "type" appears to encompass a considerable variety of chert from several different starta (Sussenbach 1997:29). Lewis (1971) reported that the Monteagle Limestone Member contains two limestone formations, the Kidder and Ste. Genevieve. The Ste. Genevieve Formation is underlain by the St. Louis Limestone Formation which also contains chert (Taylor 1977).

The artifacts assigned to the Monteagle chert type ranged from very light gray to dark blue. The light gray had blue swirls and bands throughout and was both coarse and fine-grained. The pieces of the dark blue chert are fine-grained. Sussenbach (1997) noted that some of the medium gray, fine-grained chert could actually be from the St. Louis Formation found under the Ste. Genevieve Formation. Monteagle is considered a local chert for the occupants of Jot-em-Down. The closest sources are creeks and adjacent side slopes approximately 20 km to the northwest and about 23 km west of the shelter (Boedy 2013).

Fort Payne

The Fort Payne chert recovered from Jot-em-Down was characterized as glossy by Sussenbach (1997) and Boedy (2001). It was fine-grained, and ranged in color from light

blue to gray. The characteristic feature of this chert is the presence of small inclusions that are usually brown or tan. The chert occurs west of Jot-em-Down, "in the Cumberland River drainage in Russell, Cumberland, and Monroe counties, Kentucky and adjacent portions of Tennessee" (Sussenbach 1997:30).

Knox

The Knox chert collected at Jot-em-Down is a fine-grained dark gray to black chert. It can be procured approximately 40 km to the northeast, and to the southwest near Pall Mall, Tennessee in the Wolf Creek drainage (Boedy 2013). Knox chert has been observed by the author in road gravel that was mined in Pulaski County, Kentucky.

Chalcedony

Chalcedony has been described by archaeologists in the Big South Fork National Park as a coarse, non-translucent, white material with a coarse gray to light brown cortex (Des Jean 1993; Prentice 1992). It is believed that chalcedony is found in the Pennington Formation, the uppermost stratum of Mississippian age. If it does originate in the Pennington Formation, it would be available in the Little South Fork drainage and possibly in Rock Creek and similar smaller streams that flow into the Big South Fork (Sussenbach 1997).

Haney

Haney chert is found in the Haney Limestone Member of the Newman Limestone series that is part of the Mississippian system (Evans 1996). The distinctive characteristic of the chert is the oolitic nature of the material. The specimens from Jot-em-Down were light gray and identified by the oolites. Sources of this chert are in drainages of the Kentucky and Red Rivers.

Breathitt

Breathitt chert occurs in the Upper Breathitt Formation just above the Skyhill Coal Zone (Evans 1996). It is found in the upper Kentucky River drainage. The Breathitt chert identified at Jot-em-Down was coarse-grained, colored black with some brown, and had a dull luster.

Boyle

Boyle chert is highly variable in color with whites and tans mixed with blue, pink, red, brown and gray. It is very fine-grained and very fossilferous (Sharp et al. 2001). It occurs in geologic formations located in the Outer Bluegrass region of Kentucky. The Boyle chert found at Jot-em-Down was very light gray with numerous fossils.

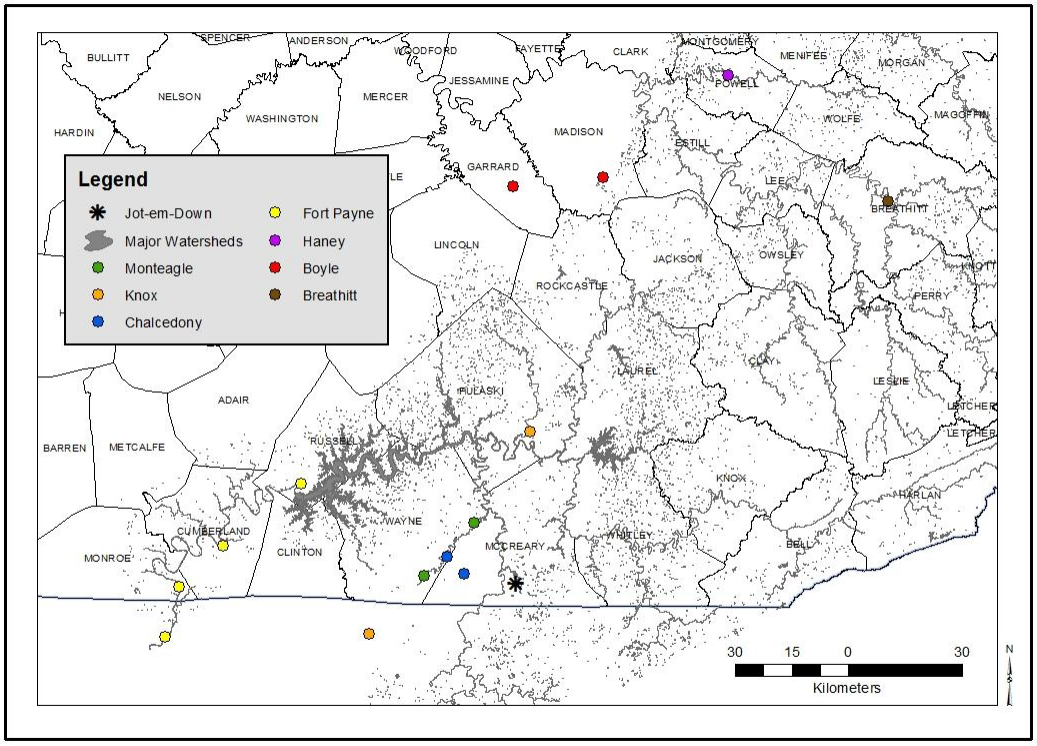

Figure 5.1: Chert source locations.

Projectile Points

Thirty-three projectile points were collected from the three test units. The majority (n = 28) were manufactured from Monteagle chert. Two were made from Fort Payne, one each from Knox, Haney, and unidentified chert. Seventeen of the points were too fragmentary to distinguish type or age. The sixteen points that were typed suggest use of the site ranged from about 7000 B.C. to nearly A.D. 1300. A complete list of projectile points collected with measurements and descriptions is in Appendix A. A few are pictured below (Figure 5.2).

Figure 5.2: Selected projectile points. Top row (left to right) 1) Motley; 2) Jack's Reef Pentagonal; 3) similar to Jack's Reef Corner Notched; 4) Madison. Bottom Row (l to r) 5) Lowe Flared Base; 6&7) 2 Copena Triangular; 8) Table Rock Cluster; 9) Eva II.

Thirteen projectile points were recovered from Test Unit 1. Of those, seven were identifiable. The earliest was a possible Early Archaic period Kirk Corner Notched specimen from Level 4. A triangular point associated with Late Prehistoric/Mississippi period was recovered from Level 5. Three points were collected from Level 6 and consisted of a Motley (Late Archaic through Early Woodland periods), Jack's Reef Pentagonal (Late Woodland period), and a point similar to Motley or Jack's Reef Corner Notched (Late Archaic and Late Woodland periods). The final two identifiable points were recovered in Level 7, and consisted of a Lowe Flared Base (Middle Woodland) and a Madison (Late Woodland/Mississippi).

Six of the nine projectile points collected from Test Unit 2 were identifiable. Three triangular points representing the Mississippi period were recovered from Level 4. Two Copena Triangular points (Middle Woodland) were collected from Level 4 and Level 8. Level 9 contained a point that resembled a stemmed type associated with the Late Archaic period.

Eleven points were recovered from Test Unit 3, but only three were identifiable. In Level 4 there was a Jack's Reef Pentagonal (Late Woodland), and two points from Level 6 were typed. One resembled points in the Table Rock Cluster, perhaps a Flint Creek (Late Archaic), and the other was an Eva II (Middle Archaic).

Other Bifaces

Twenty additional bifaces were collected from the three test units. Eight were recovered from Test Unit 1, Levels 3, 4, 5, 6, and 9. Nine bifaces were collected from Levels 3, 4, 5, 6, and 8 of Test Unit 2. Test Unit 3 yielded three bifaces from Levels 3, 4, and 7. Five of the specimens were early-stage bifaces and fifteen were late-stage.

All the bifaces collected from Test Unit 1 are late-stage and made from Monteagle chert. The biface from Level 3 is a small, heat spalled fragment weighing 0.8 grams. The specimen from Level 4 is a drill tip that weighs 0.2 and the bifaces from Levels 5 and 6 are point tips weighing 0.6 and 1.2 grams, respectively. Additional bifaces from Level 6 consist of a fragment weighing 0.8 grams that may be either from the midsection or base of a projectile point and a thin, heat spalled, notched flake weighing 1.2 grams. The purpose and utilization of this biface is not clear. An end scraper was also collected from Test Unit 1, Level 6. It was fashioned from a cortical flake and has been retouched on two edges on the opposite side from the cortex. One large flake was taken off the cortex side; it appears, to produce a platform for placing the thumb during use. The end scraper weighs 3.6 grams. The last biface collected from Test Unit 1 was from Level 9 and is a fragment that may represent the midsection of a projectile point. It weighs 2.3 grams.

Nine bifaces were collected from Test Unit 2, four early-stage from Levels 4, 5, and 8 and five late-stage from Levels 3, 4, and 6. Three of the early-stage bifaces were made of Monteagle chert and were from size grade one-half inch. It was not possible to determine the type of tool those artifacts represented. The specimen from Level 4 weighed 1.6 grams and the two bifaces from Level 5 and weighed 2.7 and 1.0 grams, respectively. The large, early-stage biface from Level 8 was made from chalcedony and weighed 94.1 grams. It was the only tool analyzed that fell into the one inch size grade. Although utilized, it was never thinned. One edge of the tool has cortex and flake scars were covered by a brownish patina.

Two of the late-stage bifaces collected from Test Unit 2, Level 3 were made of Monteagle chert. They consisted of a projectile point tip and a tool midsection which, together, weighed 2.4 grams. The third specimen was manufactured from an unidentified chert. It weighed 1.3 grams, but it was not clear what type of tool it represented. The biface fragment collected from Level 4 was made of Monteagle chert, but no use could be discerned. It weighed 1.4 grams. The specimen from Level 6 was the upper portion of a projectile point that was made from Monteagle chert. It weighed 2.4 grams.

All three bifaces collected from Test Unit 3 were manufactured from Monteagle chert. The first, from Level 3 is an early-stage biface made from a flake. There is a hump on one face that was never thinned. The artifact weighed 4.4 grams. The biface from Level 4 is a small (0.6 grams), late-stage biface fragment. It is not clear what type of implement this small piece represents. The late-stage biface from Level 7 was a projectile point tip that weighed 0.1 gram.

Unifaces

Six unifaces were recovered from the three test units: one from Test Unit 1, three from Test Unit 2, and two from Test Unit 3. All were manufactured from Monteagle chert. The uniface from Test Unit 1 was recovered from Level 4. It is heat spalled, weighs 3.4 grams, and is too fragmentary to discern a usage. One uniface collected from Test Unit 2 was in Level 3. It was a flake fragment with cortex that was utilized as an end scraper, and weighed 1.2 grams. The other two unifaces from Test Unit 2 were recovered in Level 4. One is a thick fragment that has been retouched along one edge. The other is a graver formed from a secondary flake. Both unifaces are heat spalled and they weigh 1.9 and 2.4 grams, respectively. The unifaces from Test Unit 3 are from Levels 5 and 6. The

Level 5 artifact is almost completely cortex and was retouched along one edge. It weighs 0.9 grams. The uniface from Level 6 is an end scraper produced from long, narrow primary flake. One entire edge is cortex and one end has been retouched to form the scraper. It weighs 0.8 grams.

Debitage

Debitage is either a by-product of manufacturing stone tools, or in some lithic industries emphasizing flake production for expedient use, the desired product (Sussenbach 1997:57). As is often the case at prehistoric sites, debitage was by far the most abundant artifact class recovered from the Jot-em-Down Shelter. The analysis of these flakes formed the basis of the research for this thesis. Following the lead of Sussenbach (1997) and Kline et al. (1982), the artifacts were separated into seven categories based primarily on platform and dorsal surface characteristics. The following is a description of the seven categories and the findings of the analysis.

Primary Flakes

Primary flakes are the first to be removed during the reduction sequence. Because of this, they are characterized by having cortex completely covering the dorsal surface. The platform, where they are struck with knapping tools, is approximately 90 degrees to the dorsal surface. Most primary flakes recovered from Jot-em-Down Shelter came from Test Unit 1. The flakes recovered from all three units were produced from Monteagle chert (Table 5.1). One possible explanation for Test Unit 1 having more primary flakes may be the simple fact that there were more excavated layers in the unit. The three test units had similar distributions of flake size, although the percentages were reversed in Test Unit 1 in which there were larger numbers of smaller flakes recovered.

Due to the very definition of the primary flake type, all specimens had cortex present. All units had a small percentage of utilized primary flakes, with Test Unit 3 having more than twice the percentage of Test Unit 2 and four times that of Test Unit 1. However, it should be noted that the percentage in Test Unit 3 only represents two flakes. There are low percentages of heat exposed flakes as well. Test Unit 1 primary flakes show no heat exposure and Test Unit 2 and 3 have 27 and 17 percent, respectively.

The flakes in Test Unit 3 average roughly 2 grams more in mean weight than the flakes from the other two units. It is not clear why the fewer number of flakes in Test Unit 3 would, on average, weigh more than the flakes in the other two units.

Table 5.1: Characteristics of Primary Flakes from Test Units.

Attributes and Variables	Test Unit 1		Test Unit 2		Test Unit 3	
	#	%	#	%	#	%
Size						
one-quarter inch	15	58	7	47	5	42
one-half inch	11	42	8	53	7	58
Chert Type						
Monteagle	26	100	15	100	12	100
Ft. Payne	-	-	-	-	-	-
Knox	-	-	-	-	-	-
Chalcedony	-	-	-	-	-	-
Haney	-	-	-	-	-	-
Breathitt	-	-	-	-	-	-
Boyle	-	-	-	-	-	-
Unidentified						
Utilized						
Yes	1	4	1	7	2	17
No	25	96	14	93	10	83
Heat Exposed						
Yes	-	-	4	27	2	17
No	26	100	11	73	10	83
Mean Weight (gm)	1.57		1.62		3.67	
Sample Size	26		15		12	

Secondary Flakes

Secondary flakes are characterized by the presence of some cortex on their dorsal surfaces. Platform angles are approximately 90 degrees and small platforms are common. Like primary flakes, secondary flakes are removed early in the reduction sequence. Similar to primary flakes, the highest proportion of secondary flakes is from Test Unit 1 (Table 5.2). Percentages of each size of flakes were fairly evenly distributed in each test unit and the majority of flakes were from Monteagle chert. There were small percentages of flakes produced from Knox chert and chalcedony in Test Unit 1 and chalcedony in Test Unit 3. Smaller percentages of utilized and heat exposed flakes occurred in Test Unit 1 and the mean weight in Test Unit 2 was about 0.7 grams more than the other units.

Table 5.2: Characteristics of Secondary Flakes from Test Units.

Attributes and Variables	Test Unit 1		Test Unit 2		Test Unit 3	
	#	%	#	%	#	%
Size						
one-quarter inch	43	54	11	61	14	56
one-half inch	37	46	7	39	11	44
Chert Type						
Monteagle	78	97.5	18	100	23	92
Ft. Payne	-	-	-	-	-	-
Knox	1	1.25	-	-	2	8
Chalcedony	1	1.25	-	-	-	-
Haney	-	-	-	-	-	-
Breathitt	-	-	-	-	-	-
Boyle	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-
Utilized						
Yes	5	6	5	28	7	28
No	75	94	13	72	18	72
Heat Exposed						
Yes	3	4	2	11	2	8
No	77	96	16	89	23	92
Mean Weight	1.33		1.98		1.25	
Sample Size	80		18		25	

Interior Flakes

Interior flakes have 90 degree platform surfaces, but no cortex on their dorsal surfaces. Some flakes may exhibit cortex on their platforms, but others do not. These flakes are removed during intermediate stages of reduction, often when a square edge of a biface is being thinned. A greater variety of chert types are found in this flake category (Table 5.3). All chert types found at the site were represented in this artifact type. Test Unit 2 had a larger percentage of one-half inch interior flakes than the other two test units. Cortex was absent from a majority of the flakes with percentages being roughly equal between test units. Test Unit 2 had a larger percentage of utilized flakes, and a slightly larger mean weight. Heat exposure was the similar across the test units.

Bifacial Thinning Flakes

Bifacial thinning flakes are identified by acute, lipped, or multi-faceted platforms, which indicate their removal from biface edges. These flakes are produced during the middle to late stages of bifacial reduction and during resharpening of bifacial tools (Sussenbach 1997). The majority of bifacial thinning flakes recovered from Jot-em-Down were produced from Monteagle chert, although some other cherts were represented (Table 5.4). Proportions of size grades were fairly evenly distributed across the test units. Few of the flakes in any of the test units had cortex, and flakes in Test Unit 3 were utilized less but exposed to heat more frequently than flakes in the other two test units. Flakes in Test Unit 2 had a slightly greater mean weight.

Table 5.3: Characteristics of Interior Flakes from Test Units.

Attributes and Variables	Test Unit 1		Test Unit 2		Test Unit 3	
	#	%	#	%	#	%
Size						
one quarter inch	298	84	68	69	121	85
one half inch	56	16	31	31	21	15
Chert Type						
Monteagle	336	95	93	94	136	96
Ft. Payne	5	1.4	4	4	4	3
Knox	-	-	-	-	2	1
Chalcedony	3	0.8	-	-	-	-
Haney	5	1.4	-	-	-	-
Breathitt	-	-	1	1	-	-
Boyle	2	0.6	-	-	-	-
Unidentified	3	0.8	1	1	-	-
Cortex						
Present	51	14	14	14	26	18
Absent	303	86	85	86	116	82
Utilized						
Yes	37	10	24	24	19	12
No	317	90	75	76	123	88
Heat Exposed						
Yes	25	7	11	11	12	9
No	329	93	88	89	130	91
Mean Weight	.545		.821		.611	
Sample Size	354		99		142	

Table 5.4: Characteristics of Bifacial Thinning Flakes from Test Units.

Attributes and Variables	Test Unit 1		Test Unit 2		Test Unit 3	
	#	%	#	%	#	%
Size						
one quarter inch	77	88	57	80	134	89
one half inch	11	12	14	20	17	11
Chert Type						
Monteagle	83	94	69	97	143	95
Ft. Payne	2	2	2	3	7	4
Knox	-	-	-	-	-	-
Chalcedony	1	1	-	-	-	-
Haney	-	-	-	-	-	-
Breathitt	-	-	-	-	-	
Boyle	-	-	-	-	-	-
Unidentified	2	2	-	-	1	1
Cortex						
Present	1	1	7	10	11	7
Absent	87	99	62	90	140	93
Utilized						
Yes	14	16	10	14	14	9
No	74	84	59	86	137	91
Heat Exposed						
Yes	3	3	3	6	21	14
No	85	97	66	94	130	86
Mean Weight	.464		.666		.486	
Sample Size	88		71		151	

Flake Fragments

This category of artifact lacks a platform and is therefore not assignable to any other group. However, the fragments do exhibit at least one smooth surface that is a characteristic of other flake types. This is different than artifacts categorized as angular fragments (see description below). Monteagle was again the dominant chert in this artifact type, but all other cherts were represented (Table 5.5). Size grade percentages were similar across the test units and most of the artifacts measured one-quarter inch. Approximately 15 percent of the flakes from all three test units had cortex. Utilization

was a little less in Test Unit 1, and Test Unit 2 had a slightly larger percentage of heat exposure. The mean weight in Test Unit 2 was larger.

Table 5.5: Characteristics of Flake Fragments from Test Units.

Attributes and Variables	Test Unit 1		Test Unit 2		Test Unit 3	
	#	%	#	%	#	%
Size						
one quarter inch	485	93	194	87	322	90
one half inch	37	7	29	13	35	10
Chert Type						
Monteagle	516	98.8	213	95	342	96
Ft. Payne	1	0.2	1	0.5	8	2
Knox	1	0.2	-	-	-	-
Chalcedony	1	0.2	-	-	-	-
Haney	1	0.2	3	1	2	0.5
Breathitt	-	-	1	0.5	-	-
Boyle	-	-	-	-	3	1.0
Unidentified	2	0.4	5	2	2	0.5
Cortex						
Present	60	11	39	18	53	15
Absent	462	89	184	82	304	85
Utilized						
Yes	18	3	24	11	30	8
No	504	97	199	89	327	92
Heat Exposed						
Yes	67	13	65	29	67	19
No	455	87	158	71	290	81
Mean Weight	.396		.623		.472	
Sample Size	522		223		357	

Angular Fragments

This category consists of artifacts with no flake characteristics. Specimens are blocky, thick pieces with no smooth faces, platforms, or percussion rings. Kline et al. (1982) did not use this category, but Sussenbach (1997) identified and used it in his study. This group of artifacts is the least uniform among test units. Most of the ninety-two specimens were in the one-quarter inch size grade; however, percentages vary between test units

(Table 5.6). The presence of cortex was similar in Test Units 1 and 3, but much larger in Test Unit 2. Utilization percentages were similar, although there was no utilization noted in Test Unit 3. The percentages of heat exposure were also mixed. Test Units 2 and 3 have similar numbers, but Test Unit 1 has a small percentage. As is the case in other categories, Test Unit 2 had the largest mean weight and Monteagle was the predominant chert type. Four other chert types were represented across test units, but in much smaller percentages.

Table 5.6: Characteristics of Angular Fragments from Test Units.

Attributes and Variables	Test Unit 1		Test Unit 2		Test Unit 3	
	#	%	#	%	#	%
Size						
one quarter inch	38	81	12	60	25	93
one half inch	9	19	8	40	2	7
Chert Type						
Monteagle	43	91	18	90	26	96
Ft. Payne	-	-	-	-	1	4
Knox	-	-	-	-	-	-
Chalcedony	2	4.5	-	-	-	-
Haney	-	-	1	5	-	-
Breathitt	-	-	-	-	-	-
Boyle	-	-	-	-	-	-
Unidentified	2	4.5	1	5	-	-
Cortex						
Present	8	18	6	30	5	19
Absent	39	82	14	70	22	81
Utilized						
Yes	2	4	1	5	-	-
No	45	96	19	95	27	100
Heat Exposed						
Yes	4	9	5	25	9	33
No	43	91	15	75	18	66
Mean Weight	1.16		1.85		1.24	
Sample Size	47		20		27	

Lithic Raw Materials

Table 5.7 shows the breakdown of artifact types and debitage characteristics by lithic raw material type. Overall, the majority of artifacts across all material types were flake fragments (47%). Twenty-six percent of artifacts were interior flakes and bifacial thinning flakes were 13 percent of all artifacts. The rest of the artifacts were represented in percentages from a low of 0.2 percent for early-stage bifaces to 5.3 percent for secondary flakes. Projectile points made up 1.4 percent of the artifacts collected, and all tools recovered were approximately 3 percent of the chipped stone artifact assemblage.

Monteagle is the dominant chert recovered across the site. Ninety-six percent of all artifacts and eighty-five percent of the projectile points collected during excavation were produced from Monteagle chert. The predominant debitage category from Monteagle chert was flake fragments
(48%). All fifty-three primary flakes recovered from Jot-em-Down Shelter were produced from Monteagle chert.

Ft. Payne was the second-most utilized chert, accounting for 1.6 percent of the artifacts. Ft. Payne artifacts included two projectile points and fairly evenly divided percentages of interior flakes, bifacial thinning flakes, and flake fragments. One angular flake was also collected.

Artifacts fashioned from unidentified chert compose the next largest proportion with 0.9 percent. These artifacts consisted of one projectile point and debitage from all categories except primary and secondary flakes. Forty-five percent of the artifacts made from unidentified chert were flake fragments.

Table 5.7: Artifact Type and Debitage Characteristics by Lithic Raw Material Type.

Artifact Type	Monteagle		Ft. Payne		Knox		Chalcedony		Haney		Breathitt		Boyle		Unidentified		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Projectile Point	28	1.2	2	5	1	14	-	-	1	8	-	-	-	-	1	5	33	1.4
Early Stage Biface	4	0.2	-	-	-	-	1	11	-	-	-	-	-	-	-	-	5	0.2
Late Stage Biface	14	0.6	-	-	-	-	-	-	-	-	-	-	-	-	1		15	0.6
Uniface	6	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	0.3
Primary Flake	53	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	2.3
Secondary Flake	119	5.3	-	-	3	43	1	11	-	-	-	-	-	-	-	-	123	5.3
Interior Flake	565	25.2	13	35	2	29	3	33	5	38	1	50	2	40	4	20	595	26
Bifacial Thinning Flake	295	13.2	11	30	-	-	1	11	-	-	-	-	-	-	3	15	310	13
Flake Fragment	1071	48	10	27	1	14	1	11	6	46	1	50	3	60	9	45	1102	47
Angular Fragment	87	3.8	1	3	-	-	2	22	1	8	-	-	-	-	3	15	94	4
Total	2242	96	37	1.6	7	0.3	9	0.4	13	0.6	2	.09	5	0.2	21	0.9	2336	100
Debitage to Tool Ratio	42:1		18:1		6:1		8:1		12:1		-		-		20:1		39:1	
Debitage Characteristics	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Size																		
one quarter inch	1867	85	25	71	2	33	5	63	10	83	-	-	3	60	14	74	1922	85
>one–half inch	323	15	10	29	4	67	3	37	2	17	2	100	2	40	5	26	347	15
Cortex																		
present	447	20	1	3	3	50	1	13	2	17	-	-	-	-	3	16	454	20
absent	1743	80	34	97	3	50	7	87	10	83	2	100	5	100	16	84	1815	80
Utilized																		
yes	201	9	5	14	2	33	1	13	1	8	1	50	1	20	2	11	212	9
no	1989	91	30	86	4	67	7	87	11	92	1	50	4	80	17	89	2057	91
Heat Exposed																		
yes	291	13	8	23	-	-	-	-	1	8	1	50	-	-	5	26	306	13
no	1899	87	27	77	6	100	8	100	11	92	1	50	5	100	14	74	1963	87
Mean Weight (gm)	.613		2.18		.869		2.43		.85		1.05		.56		1.07		.624	

The next three frequently used raw materials were Haney chert, chalcedony, and Knox chert at 0.6 percent, 0.4 percent, and 0.3 percent, respectively. One projectile point was made from Haney chert and there were also large percentages of interior flakes and flake fragments made from that material type. One large early-stage biface was made from chalcedony. It was the only artifact collected from the site that was in the one-inch size grade. Chalcedony was represented in all flake categories except primary flakes. One projectile point was made from Knox chert and the majority of flakes (43%) were secondary.

Very few artifacts were made from Boyle or Breathitt, accounting for only 0.2 percent and .09 percent, respectively. Each material was represented by interior flakes and flake fragments. Boyle chert had a 50/50 split between the categories and Breathitt chert was split 40/60.

The overall debitage-to-tool ratio is 46:1. Monteagle has the highest ratio with 51:1 followed by unidentified chert (19:1), Ft. Payne (18:1), Haney (12:1), chalcedony (8:1) and Knox (6:1). The debitage-to-tool ratio is a relative measure of the emphasis on tool production by prehistoric occupants of the site (Ranere 1980). Debitage produced during tool production and/or maintenance depends on how much flaking takes place. Theoretically, tool production will produce more and a different type of debitage than tool maintenance. This is because during tool production, a lot of debitage is removed from a nodule or core during reduction. In contrast, tool maintenance requires less reduction and thus less debitage is produced because the initial tool form has already been produced. Therefore, the amount of debitage in relation to number of tools

recovered (debitage-to-tool ratio) can be used to gain insights into the extent and type of flintknapping activity that occurred at a site.

The majority of the debitage measured one-quarter inch (85%). Twenty percent has cortex, only nine percent was utilized, and thirteen percent was exposed to heat. Most chert types followed similar patterns with the following exceptions. Knox and Breathitt have larger percentages of artifacts that are greater than one-half inch. Knox debitage was split evenly between having cortex and not. There was a larger percentage of utilization among both Knox and Breathitt debitage, and heat exposure occurred more frequently on Breathitt flakes. However, it should be noted that results for Knox and Breathitt chert were based on small numbers of artifacts. There were six specimens of Knox debitage recovered and only two specimens of Breathitt. Mean weights ranged from 2.43 grams of chalcedony debitage to 0.56 grams for debitage made from Boyle chert. The median weight was 0.960 grams.

Analysis Discussion

The analysis results described and tables displayed above illustrate several key points for each artifact class as well as the assemblage as a whole. These results highlight certain patterns and trends that can help explain the tool making activities at the site. These patterns can help with the interpretation of the human activities in and around the site and the data can also be used to compare the Jot-em-Down Shelter with other sites locally and regionally.

The primary flakes recovered from the site are the result of the removal of chert in the early-stages of artifact production, the first materials removed from a parent cobble or nodule. These flakes have cortex on the entire area of their dorsal faces. All the primary

flakes collected at Jot-em-Down are Monteagle chert. Monteagle is the most abundant, local chert that would have been available to the shelter occupants. Sources closest to the shelter are in the Big South Fork and Beaver Creek drainages.

The majority of tools found at the site (n = 43, 88%) were made from Monteagle chert and the presence of the primary flakes suggests that cobbles arrived at the shelter intact. "Raw material collection strategies will condition the reduction strategies used to produce finished tools. For example, raw materials collected during trips to quarries or collection locales may be partially reduced first, to lessen the overall mass toted" (Sievert and Wise 2001:86). Since Monteagle was the only chert represented by primary flakes it appears that no attempt was made to reduce the cobbles to preforms before they were carried to the shelter to be further reduced. Therefore, the source must be close and materials were easily carried to the shelter without initial reduction.

Knox chert and chalcedony are also locally available raw materials. Only four percent of tools recovered were produced from these materials. However, along with Monteagle, these were the only varieties from which secondary flakes were produced. The lack of primary flakes from these materials suggest that, although local, the sources were far enough away from Jot-em-Down that cobbles and nodules were reduced before retrieval to the shelter.

The nonlocal cherts of Ft. Payne and Haney accounted for six percent of the tools. No primary or secondary flakes of either of these cherts were collected. Both materials were represented in all other flake types except for bifacial thinning flakes from Haney chert. This could mean that although the tools were fashioned in the shelter, the raw materials were gathered and brought to the shelter as preforms or nearly finished tools.

Although present at the site, nonlocal cherts Breathitt and Boyle made up a small percentage of the total lithic assemblage. No tools made from these cherts were recovered from the site. The unidentified chert type, from which one projectile point was made, accounts for two percent of the tools.

The interior flake category is the first to have a representative from each raw material type. The flake type represents stage two of the reduction sequence. Regardless of the state of reduction of artifacts when they were carried to the site, the presence of interior flakes suggests that each material was further reduced or knapped at the site.

Ninety-five percent of bifacial thinning flakes were made from Monteagle chert. This was expected because the majority of tools produced were from Monteagle. Unexpectedly, there were no bifacial thinning flakes recovered from Knox or Haney cherts, although there were tools made of each. This may be the result of the small percentage of tools made from these materials or perhaps the simple result of test unit location.

Like interior flakes, flake fragments were produced from all raw material types. At 47 percent, flake fragments represent the most abundant lithic category at the site. They are another indication that knapping of all raw material types occurred at the shelter.

Angular fragments are represented in every raw material category except Knox, Breathitt, and Boyle. This is likely due to the fact that overall angular fragments only account for four percent of artifacts recovered. Because there are few of these artifacts in any material type, it is not surprising that chert types with low artifact percentages, 0.3, 0.09, and 0.2, respectively, would lack angular fragments.

Chapter 6 - Intrasite Analyses

Following the lead of Sussenbach (1997) and Boedy (2001), the next analysis compared artifact assemblages between levels within each test unit in order to identify patterns in the horizontal or vertical distribution of artifacts. Horizontal patterns provide insight into the kind of activities engaged in by the occupants of the shelter, while vertical patterning assesses the stratigraphic integrity within each test unit.

This analysis was conducted by first comparing the artifact assemblages by test unit level (Tables 6.1-6.3). Next, the artifacts were combined by test unit and the three sets of data were observed side by side (Table 6.4). Three factors were at the center of this analysis, location of diagnostic projectile points, the distribution of lithic raw material types, and the characteristics of the Monteagle chert debitage.

Vertical Patterning

Temporally Diagnostic Artifacts

Thirty-three projectile points and point fragments were collected from the three test units at Jot-em-Down Shelter. Thirteen were recovered from Test Unit 1 and seven of those were assignable to a type and age. A possible Early Archaic Kirk Corner Notched made from Haney chert was recovered from Test Unit 1, Level 4. From Level 5, a triangular point made from Monteagle chert and associated with late prehistoric periods was identified. Three projectile points made from Monteagle chert were collected from Level 6, a Motley associated with Late Archaic and Early Woodland, a Jack's Reef Pentagonal diagnostic of the Late Woodland period, and a point similar to those two types that would also be dated between the Late Archaic and Late Woodland periods. The last two identifiable projectile points from Test Unit 1 were from Level 7 and

consisted of a Madison point made from Knox chert associated with Late Woodland and Mississippi periods and a Lowe Flared Base produced from Monteagle chert dating to the terminal Middle Woodland period.

Nine projectile points were collected from Test Unit 2. Of these, six were identifiable and categorized by type and age. Three triangular points associated with Late Prehistoric periods were located in Level 4, and were fashioned from Monteagle chert. A fourth point from Level 4 was a Copena Triangular point made from an unidentified chert. Another Copena Triangular point made from Monteagle chert was recovered from Level 8. Such points are diagnostic of the Middle Woodland period. In Level 9, a stemmed projectile point made of Monteagle chert was collected. Although not typed, the point shares characteristics with Late Archaic stemmed points.

Test Unit 3 produced eleven projectile points of which three were identifiable. A Jack's Creek Pentagonal point made from Fort Payne chert was recovered from Level 4. That point type is associated with the Late Woodland period. Two points made from Monteagle chert were collected from Level 6. One was an Eva II, which is diagnostic of the Middle Archaic. The other point was similar to points in the Table Rock Cluster, perhaps a Flint Creek point. Table Rock Cluster points are diagnostic of the Late Archaic.

The projectile points recovered and described above give insight into the integrity of vertical patterning across the site. The Test Unit 1deposits appear to have been disturbed. The identified points were not recovered in chronological order. A projectile point associated with the Early Archaic period was recovered in a level located above levels containing later point types from the Late Prehistoric, Late Archaic, Early Woodland,

Late Woodland, Mississippi, and Middle Woodland periods, in that order. There is no logical temporal continuum within this unit. Level 7, with projectile points representing the Middle Woodland and Late Woodland/Mississippi periods, may be intact but points in Level 6 date to the Late Archaic and Early Woodland periods.

The identified projectile points in Test Units 2 and 3 suggest vertical patterning with integrity. In Test Unit 2, the Late Archaic period point (Level 9) is underlying Middle Woodland period points recovered from Levels 8 and 4. The Middle Woodland period points are overlain by Late Prehistoric period points collected from Level 4. Likewise, the points in Test Unit 3 suggest intact deposits. Middle and Late Archaic period points from Level 6 were recovered below the Late Woodland point found in Level 4.

Lithic Raw Materials

In Test Unit 1, all levels yielded a majority of debitage produced from Monteagle chert (Table 6.1). Chalcedony first appears in Level 3. Levels 4, 6, and 7 had the highest occurrences of different material varieties. Level 4 contained Knox, chalcedony, Haney, and Boyle. Level 6 yielded debitage made of Knox, chalcedony, and Haney. Debitage from Haney and Fort Payne chert was collected from Level 7 and Fort Payne was found in Level 8. Chalcedony was recovered in Levels 10 and 11. Unidentified chert was present in Levels 4, 6, 7, and 8. No artifacts made from Breathitt chert were collected from this TU.

These data show that the usage of non-local cherts expand in the middle levels of Test Unit 1. The lithic raw material types in Levels 4 – 7, correspond with the occurrence of identifiable projectile point styles. As noted previously, the deposits Test Unit 1 appear to be disturbed. Because of this, the appearance of vertical patterning is not reliable.

Table 6.1: Comparison of Artifact Assemblages among Levels in Test Unit 1.

Variable/Value	Test Unit 1																											
	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8		Level 9		Level 10		Level 11		Level 12		Level 13		Level 14	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Chert Type																												
Monteagle	1	100	18	100	63	97	345	97	194	100	285	98	100	92	40	85	22	100	24	96	2	67	6	100	1	100	1	100
Ft. Payne	-	-	-	-	-	-	-	-	-	-	-	-	4	3.7	4	9	-	-	-	-	-	-	-	-	-	-	-	-
Knox	-	-	-	-	-	-	1	0.3	-	-	1	0.3	1	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chalcedony	-	-	-	-	2	3	3	0.8	-	-	1	0.3	-	-	-	-	-	-	1	4	1	33	-	-	-	-	-	-
Haney	-	-	-	-	-	-	2	0.6	-	-	2	0.7	3	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Breathitt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boyle	-	-	-	-	-	-	2	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	3	0.8	-	-	2	0.7	1	0.9	3	6	-	-	-	-	-	-	-	-	-	-	-	-
Local/Nonlocal Chert																												
Local	1	100	18	100	65	100	349	98	191	100	287	98.6	101	93	40	85	22	100	25	100	3	100	6	100	1	100	1	100
Nonlocal	-	-	-	-	-	-	7	2	-	-	4	1.4	8	7	7	15	-	-	-	-	-	-	-	-	-	-	-	-
Monteagle Chert Debitage																												
Cortex																												
Present	-	-	5	31	8	13	91	27	22	12	58	21	20	20	9	23	4	19	-	-	-	-	3	50	-	-	1	100
Absent	1	100	11	69	55	87	250	73	169	88	218	79	79	80	31	77	17	81	24	100	2	100	3	50	1	100	-	-
Utilized																												
Yes	1	100	1	6	4	6	24	7	9	5	16	6	5	5	7	18	3	14	3	13	-	-	-	-	-	-	-	-
No	-	-	15	94	59	94	317	93	182	95	260	94	94	95	33	82	18	86	21	87	2	100	6	100	1	100	1	100
Heat Exposed																												
Yes	-	-	-	-	7	11	28	8	15	8	31	11	10	10	4	10	1	5	2	8	-	-	-	-	-	-	-	-
No	1	100	16	100	56	89	313	92	176	92	245	89	89	90	36	90	20	95	22	92	2	100	6	100	1	100	1	100
Size																												
one-quarter inch	-	-	8	50	49	78	291	85	168	88	243	88	88	89	33	83	16	76	23	96	2	100	6	100	1	100	1	100
one-half inch	1	100	8	50	14	22	50	15	23	12	33	12	11	11	7	17	5	24	1	4	-	-	-	-	-	-	-	-
Stage																												
Early	-	-	5	31	6	10	69	20	17	9	35	13	18	18	7	17	3	15	-	-	-	-	3	50	-	-	-	-
Middle	-	-	5	31	26	43	102	30	53	28	104	38	24	24	14	35	5	25	4	17	-	-	1	17	-	-	1	100
Late	-	-	-	-	-	-	25	7	5	3	22	8	9	9	8	20	4	20	10	42	-	-	1	17	-	-	-	-
Flake Type																												
Primary	-	-			1	2	13	4	3	2	6	2	1	1	1	2.5	1	5	-	-	-	-	-	-	-	-	-	-
Secondary	-	-	4	25	4	6	25	7	8	4	17	6	11	11	5	12.5	2	10	-	-	-	-	2	33	-	-	-	-
Interior	-	-	5	31	26	41	102	30	53	28	104	38	24	24	14	35	5	24	4	17	-	-	1	17	-	-	1	100
Bifacial Thinning	-	-			-	-	25	7	5	3	22	8	9	9	8	20	4	19	10	42	-	-	1	17	-	-	-	-
Fragment	1	100	7	44	31	49	160	47	116	61	119	43	49	49	11	27.5	9	43	10	42	2	100	2	33	1	100	-	-
Angular Fragment	-	-	-	-	1	2	16	5	6	3	14	5	5	5	1	2.5	-	-	-	0	-	-	-	-	-	-	-	-
Mean Weight	.7		.831		.672		.542		.604		.471		.521		.488		.765		.313		.15		.267		0.2		0.6	

The levels in Test Unit 2, like those in Test Unit 1, contained a majority of Monteagle debitage (Table 6.2). However, other materials were recovered. Fort Payne debitage was collected from Level 1/2. Levels 3, 4, and 5 contained the most variety of lithic materials. Level 3 yielded debitage made from Haney and Breathitt cherts. Fort Payne, Haney, and Breathitt were found in Level 4 and Level 5 contained Fort Payne and Haney. A single artifact made from chalcedony was collected from Level 8. No Knox or Boyle chert was recovered. Unidentified chert was present in Levels 1/2, 3, 4, and 5.

Below Level 1/2, this unit was believed to have been undisturbed (see excavation description above). This being the case, it seems that non-local cherts were utilized at the shelter when the intensity of use is noted, (i.e., when more artifacts are recovered). This vertical patterning may also suggest a more concentrated use of the shelter through time, shown by more debitage, different projectile point styles and different lithic materials.

A similar vertical pattern was found in Test Unit 3, a majority of Monteagle chert throughout, only Monteagle in the lowest, earliest layers and the occurrence of non-local cherts (Table 6.3). Haney chert debitage was collected in Level 1, but Levels 2 – 4 had the most variety of materials. Level 2 and 3 had Fort Payne, Knox, and Boyle and Level 4 contained Fort Payne, Knox, Haney, and Boyle. Fort Payne debitage was also recovered in Levels 5 – 7. Unidentified chert was collected from Levels 1 and 4, and there was no chalcedony or Breathitt chert recovered from the test unit.

The vertical patterning within Test Unit 3 suggests that at the peak of use at the shelter, both local and non-local materials were being used to manufacture tools. Like Test Unit 2, there are intact deposits within this unit. This was observed by the excavators and has been shown by the projectile points recovered (see previous section).

Table 6.2: Comparison of Artifact Assemblages among Levels in Test Unit 2.

Variable/Value	Test Unit 2															
	Level 1 & 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8		Level 9	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Chert Type																
Monteagle	37	95	91	95	166	94	96	96	30	100	5	100	17	94	2	100
Ft. Payne	1	2.5	-	-	5	2.8	1	1	-	-	-	-	-	-	-	-
Knox	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chalcedony	-	-	-	-	-	-	-	-	-	-	-	-	1	6	-	-
Haney	-	-	1	1	2	1.1	1	1	-	-	-	-	-	-	-	-
Breathitt	-	-	1	1	1	0.6	-	-	-	-	-	-	-	-	-	-
Boyle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	1	2.5	3	3	3	1.7	2	2	-	-	-	-	-	-	-	-
Local/Nonlocal Chert																
Local	37	95	91	95	166	94	96	96	30	100	5	100	18	100	2	100
Nonlocal	2	5	5	5	11	6	4	4	-	-	-	-	-	-	-	-
Monteagle Chert Debitage																
Cortex																
Present	15	42	25	28	29	18	17	18	8	28	-	-	3	19	-	-
Absent	21	58	63	72	128	82	77	82	21	72	5	100	13	81	1	100
Utilized																
Yes	5	14	11	12.5	14	9	20	21	10	34	2	40	2	12.5	-	-
No	31	86	77	87.5	143	91	74	79	19	66	3	60	14	87.5	1	100
Heat Exposed																
Yes	9	25	19	22	34	22	16	17	6	21	-	-	1	6	-	-
No	27	75	69	78	123	78	78	83	23	79	5	100	15	94	1	100
Size																
one-quarter inch	29	81	66	75	133	85	71	76	22	76	3	60	12	75	1	100
one-half inch	7	19	22	25	24	15	23	24	7	24	2	40	4	25	-	-
Stage																
Early	14	39	18	20	20	13	11	12	5	17	-	-	2	13	-	-
Middle	7	19	20	23	36	23	16	17	6	21	3	60	5	31	-	-
Late	5	14	10	11	20	13	21	22	8	28	-	-	4	25	1	100
Flake Type																
Primary	5	14	6	7	1	0.6	1	1	1	3	-	-	1	6	-	-
Secondary	4	11	3	3	5	3	5	5	1	3	-	-	-	-	-	-
Interior	7	19	20	23	36	23	16	17	6	21	3	60	5	31	-	-
Bifacial Thinning	5	14	10	11	20	13	21	22	8	28	-	-	4	25	1	100
Fragment	15	42	46	52	88	56	45	48	12	41	1	20	6	38	-	-
Angular Fragment	-	-	3	3	7	5	6	6	1	3	1	20	-	-	-	-
Mean Weight	.944		.910		.641		.884		.986		.82		.819		0.1	

Table 6.3: Comparison of Artifact Assemblages among Levels in Test Unit 3.

Variable/Value	Test Unit 3																					
	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Level 7		Level 8		Level 9		Level 10		Level 11	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Chert Type																						
Monteagle	207	98.6	112	97	106	90.6	83	88.3	62	97	59	95	50	98	2	100	13	100	1	100	1	100
Ft. Payne	-	-	1	1	9	7.7	6	6.4	2	3	3	5	1	2	-	-	-	-	-	-	-	-
Knox	-	-	1	1	1	0.9	2	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chalcedony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haney	1	0.5	-	-	-	-	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Breathitt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boyle	-	-	1	1	1	0.9	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	2	0.9	-	-	-	-	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local/Nonlocal Chert																						
Local	207	98.6	112	97	107	91	85	90	62	97	56	95	50	98	2	100	13	100	1	100	1	100
Nonlocal	3	1.4	3	3	10	9	9	10	2	3	3	5	1	2	-	-	-	-	-	-	-	-
Monteagle Chert Debitage																						
Cortex																						
Present	43	21	29	26	24	23	11	14	8	14	9	16	4	9	0	-	1	8	-	-	-	-
Absent	163	79	83	74	81	77	70	86	51	86	47	84	43	91	2	100	11	92	1	100	1	100
Utilized																						
Yes	15	7	6	5	9	9	9	11	10	17	5	9	7	15	0	-	3	25	-	-	-	-
No	191	93	106	95	96	91	72	89	49	83	51	91	40	85	2	100	9	75	1	100	1	100
Heat Exposed																						
Yes	30	15	16	14	19	18	16	20	10	17	7	12.5	8	17	0	-	1	8	1	100	-	-
No	176	85	96	86	89	85	65	80	49	83	49	87.5	39	83	2	100	11	92	-	-	1	100
Size																						
one-quarter inch	185	90	93	83	90	86	76	94	55	93	53	95	36	77	1	50	7	58	1	100	1	100
one-half inch	21	10	19	17	15	14	5	6	4	7	3	5	11	23	1	50	5	42	-	-	-	-
Stage																						
Early	24	12	24	21	20	19	5	6	6	10	6	11	2	4	-	-	-	-	-	-	-	-
Middle	39	19	18	16	20	19	27	33	9	15	12	21	8	17	-	-	3	25	-	-	-	-
Late	41	20	17	15	14	13	21	26	13	22	14	25	19	40	-	-	4	33	-	-	-	-
Flake Type																						
Primary	6	3	3	3	1	1	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-
Secondary	2	1	7	6	7	7	2	3	2	3	2	4	1	2	-	-	-		-	-	-	-
Interior	39	19	18	16	20	19	27	33	9	15	12	21	8	17	-	-	3	25	-	-	-	-
Bifacial Thinning	41	20	17	15	14	13	21	26	13	22	14	25	19	40	-	-	4	33	-	-	-	-
Fragment	104	50	59	53	60	57	31	38	32	54	28	50	19	40	2	100	5	42	1	100	1	100
Angular Fragment	14	7	8	7	3	3	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-
Mean Weight	.599		.616		.608		.425		.505		.339		.849		.65		1.14		0.5		0.1	

Monteagle Debitage Characteristics

The majority of the debitage from Test Unit 1 lacked cortex, was not utilized or exposed to heat, and was one-quarter inch in size (Table 6.1). Seven of the levels had a percentage that was close to 80 percent for debitage that lacked cortex. Level 2 had a majority of debitage that lacked cortex, but had a smaller percentage (69 %). Only 50 percent of debitage in Level 12 did not have cortex. None of the artifacts recovered from Levels 1, 10, 11, and 13 had any cortex. Only one flake was collected from Level 14 and it had cortex present.

Non-utilization percentages were also high, 90+ percent, for most levels. An average of 83 percent of the debitage from Levels 8, 9, and 10 were not utilized. Artifacts from Levels 11 – 14 had no utilization at all, and the artifact from Level 1 was utilized.

No debitage in Levels 1, 2, and 11 – 14 were exposed to heat. The majority of artifacts in other levels were also not exposed to heat. Non-exposed percentages ranged from 89 – 95 percent in debitage from Levels 3 – 10.

The size of the majority of the debitage was one-quarter inch. In most levels the percentage ranged from 76 – 96 percent. Again, differences were recorded in Levels 1, 2, and 11 – 14. The one flake in Level 1 was one inch and the debitage in Level 2 was split evenly between sizes. One hundred percent of artifacts in Levels 11 – 14 were one-quarter inch, but it should be noted these levels had few artifacts.

Percentages of early-stage debitage ranged from 8 – 50 percent, with the highest percentages found in Levels 2, 4, 6, 7, 8, 9, and 12. Middle stage debitage ranged from 17 – 43 percent of the assemblage. The lowest percentages were in Levels 10 and 12, and Level 14 had only one flake that was middle stage, and therefore had one hundred percent. Percentages for late-stage debitage ranged from 3 – 42 percent. Of the three

stages, the late-stage had the fewest representative artifacts. There were no late-stage artifacts in Level 1 – 3, 11, 13, or 14.

Flake types varied throughout the levels, but overall, primary flakes had the lowest percentage and flake fragments had the highest. Only Levels 4 – 8 had every flake type and levels 1, 13, and 14 only had one flake a piece.

Mean weights ranged from 0.15 – 0.831 grams. The highest mean weight was in Level 2, which had flakes representing three categories, and the smallest mean weight was in Level 11 that only had two flake fragments.

The majority of debitage in Test Unit 2 did not have cortex, was not utilized or exposed to heat, and was size graded at one-quarter inch (Table 6.2). The percentage for not having cortex was 70 – 80 percent in most levels. Level 1/2 had only 58 percent of the artifacts that did not have cortex and Level 9 had only one flake and it did not have cortex giving that level a 100 percent for cortex absence.

Percentages were mostly around the high 80s and low 90s for non-utilization. Levels 5 – 7 were slightly smaller with percentages of 79, 66, and 60, respectively. Once again, Level 9 had 100 percent no utilization for one flake. Heat exposure percentages were also close, running in most levels between 75 and 83 percent. Level 8 had a larger percentage of non-heat exposure at 94 percent, and Level 9 was 100 percent. Most of the debitage was size graded at one-quarter inch. Percentages were in the high 70s/low 80s. Exceptions were Level 7 at only 60 percent and Level 9 at 100 percent.

Early-stage debitage was present in all but two levels, 7 and 9. Percentages ranged from 13 – 39 percent, with the highest in Level 1/2 and the lowest in Levels 4 and 8. Middle stage debitage was recovered in all levels but 9. The percentages ranged from

17 – 60 percent. The highest was in Level 7, and the lowest in Level 5. Percentages for late-stage debitage ranged from 11 – 28 percent. All but Level 7 had late-stage flakes. The highest percentage was in Level 6, and the lowest was in Level 3. Level 9 was an outlier with 100 percent of late-stage debitage, however, there was only one flake recovered from that level.

Four of the nine levels had flakes representing all six types. The highest percentages for primary and secondary flakes were 14 and 11 percent, respectively, and both were recovered from Level 1/2. Level 7 had the highest percentage of interior flakes at 60 percent. Twenty-eight percent of the debitage recovered from Level 6 was bifacial thinning flakes. This was the highest percentage recovered in Test Unit 2. The highest percentage of flake fragments recovered in a level was 56 percent from Level 4 and the highest percentage of angular fragments collected in one level was 20 percent in Level 7. Again it should be noted, 100 percent of the flakes recovered from Level 9 were interior flakes, however, this only accounted for one flake.

Mean weights of debitage recovered from Test Unit 2 levels ranged from 0.1 grams in Level 9 to 0.986 grams in Level 6. The majority of mean weights were in the 0.8 – 0.9 gram range. The only exception, other than Level 9, was Level 4 which had a mean weight of 0.641 grams.

The majority of debitage in Test Unit 3 lacked cortex, was not utilized, was not exposed to heat, and was sized graded at one-quarter inch (Table 6.3). The amount of debitage without cortex ranged from 74 – 92 percent in Levels 1 – 7 and 9. All the debitage collected from Levels 8, 10, and 11were without cortex, but there were few artifacts in these levels.

Non-utilization was high in most levels, ranging from 83 – 95 percent. Level 9 was an exception with only 75 percent of non-utilized debitage, and once again Levels 8, 10, and 11 had 100 percent of debitage that was not utilized, but there were few specimens recovered from these levels.

Heat exposure followed a similar pattern across the levels. The lack of heat exposure ranged from 80 – 87.5 percent in Levels 1 – 7. Again, Level 9 was an exception with a larger percentage, 92 percent, of artifacts that were not exposed to heat. Levels 8, 10, and 11 had small artifact frequencies, and were outside the range of other levels. The three flake fragments in Levels 8 and 11 had not been exposed to heat, and the one flake fragment collected in Level 10 had been exposed to heat.

The size grade of artifacts from Test Unit 3 was mostly one-quarter inch. Eighty-three to ninety-five percent of the artifacts recovered from Levels 1 – 6 had artifacts in this size grade. The percentage at Level 7 was slightly smaller with only 77 percent of the collected artifacts at the one-quarter size grade, and Level 9 had only 58 percent. The two flake fragments recovered in Level 8 were split between the size grades, and one flake fragment in each of Levels 10 and 11 were sized at one-quarter inch.

Early-stage debitage percentages ranged from 4 – 21 percent with the low being in Level 7 and the high being in Level 2. Middle stage debitage ranged from 15 – 33 percent. The low percentage was in Level 5, and the high was in Level 4. Late-stage debitage ranged from 13 – 40 percent across all levels. The low percentage of late-stage debitage was in Level 3; and the high was in Level 7.

Four of eleven levels had debitage from all six flake type categories. Three percent of the flakes from Levels, 1, 2, and 5 were primary flakes. Level 3 had the highest

percentage of secondary flakes at 7 percent. At thirty-three percent, the highest percentage of interior flakes was recovered from Level 4. Forty percent of the debitage collected at Level 7 was bifacial thinning flakes. That was the highest percentage collected in Test Unit 3. The highest percentage of flake fragments recovered in a level was 57 percent from Level 3, and the highest percentage of angular fragments collected in a level was 7 percent in both Levels 1 and 2. It should be noted that 100 percent of the artifacts from Levels 8, 10, and 11, where flake fragments, but they represent small amounts of artifacts.

Mean weights of debitage recovered from Test Unit 3 levels ranged from 0.1 grams in Level 11 to 1.14 grams in Level 9. The majority of mean weights were in the 0.5 – 0.65 gram range. Three levels fell outside that range. The mean weight of Level 4 was 0.425 grams, Level 6 was 0.339 grams, and Level 7 was 0.849.

Discussion

This level by level comparison revealed that there is vertical patterning within each test unit. All the test units have more percentage of debitage without cortex, that was not utilized or exposed to heat, and was size graded at one-quarter inch. Debitage totals and percentages increased deeper in the deposits, however, overall flake attributes stayed fairly constant throughout the deposits. In lower levels, artifact density tapered off.

Although frequencies/percentages differed among the test units, the overall vertical pattern of flake types was similar. Primary and secondary flakes were the least represented. Interior flakes occurred in slightly larger percentages than bifacial thinning flakes, and flake fragments made up the bulk of the debitage recovered. Angular

fragments occurred in percentages that were 7 percent or less. The exceptions to this patterning were in the lower levels because they produced few artifacts.

Horizontal Patterning

Temporally Diagnostic Artifacts

Projectile points from the site represent components from the Early Archaic through Late Prehistoric periods. Projectile points were recovered from all three test units. An Early Archaic point was recovered from Test Unit 1, and a Middle Archaic point was recovered in Test Unit 3. Late Archaic points were collected from all the test units. Early Woodland points were only found in Test Unit 1, and Middle Woodland points were found in Test Units 1 and 2. Late Woodland and Late Woodland/Mississippian points were collected in Test Units 1 and 3. Late Prehistoric period points, considered Mississippian points in the section of Kentucky that Jot-em-Down is located, were recovered in Test Units 1 and 2. The projectile points collected suggest occupations at the site starting around 7500 BC and continuing to roughly AD 1300.

Lithic Raw Materials

Seven types of lithic raw materials were identified in the artifact assemblage from the Jot-em-Down Shelter (Table 6.4). Monteagle was the principal chert type. An average of 96 percent of artifacts collected from the three test units were manufactured from Monteagle chert. Other local materials, Knox chert and chalcedony, were utilized to a much smaller extent. Knox chert was found in Test Units 1 and 2, and represented 0.3 percent and 0.5 percent of the artifacts collected, respectively. Chalcedony in Test Unit 1 represented 0.7 percent of the artifacts, and in Test Unit 2, 0.2 percent of the artifacts were manufactured from chalcedony. Fort Payne chert was collected in all three test

units, and accounted for 0.7 percent of the artifacts in Test Unit 1, 1.6 percent of artifacts in Test Unit 2, and 2.7 percent of artifacts in Test Unit 3. Haney chert was also found in all three test units. In Test Unit 1, 0.5 percent of artifacts recovered were made from Haney chert. In Test Units 2 and 3, 0.9 percent and 0.3 percent artifacts were manufactured from Haney chert, respectively. Breathitt chert was only found in Test Unit 2 where it comprised 0.4 percent of the artifacts from that unit. Boyle chert was collected in Test Unit 1 where it was 0.2 percent of the assemblage, and in Test Unit 3 where it was 0.4 percent of the total artifacts. Unidentified materials were recovered from each test unit and represented 0.8 percent of artifacts in Test Unit 1, 1.8 percent in Test Unit 2, and 0.4 percent in Test Unit 3. Overall, the test units had similar percentages of local versus non-local materials. They averaged 96 percent local to 4 percent non-local.

Table 6.4: Comparison of Artifact Assemblages among the Test Units.

Variable/Value	TU 1		TU 2		TU3	
	#	%	#	%	#	%
Chert Type						
Monteagle	1102	96.8	444	95	696	95.3
Ft. Payne	8	0.7	7	1.5	22	3
Knox	3	0.3	-	-	4	0.5
Chalcedony	8	0.7	1	0.2	-	-
Haney	7	0.6	4	0.9	2	0.3
Breathitt	-	-	2	0.4	-	-
Boyle	2	0.2	-	-	3	0.4
Unidentified	9	0.8	9	2	3	0.4
Local/Nonlocal Chert						
Local	1113	97.7	445	95	700	96
Nonlocal	26	2.3	22	5	30	4
Monteagle Chert Debitage						
Cortex						
Present	221	20	97	23	129	19
Absent	861	80	329	77	553	81
Utilized						
Yes	73	7	64	15	64	9
No	1009	93	362	85	618	91
Heat Exposed						
Yes	98	9	85	20	108	16
No	984	91	341	80	574	84
Size						
one-quarter inch	932	86	337	79	598	88
one-half inch	150	14	89	21	84	12
Stage						
Early	164	15	70	16	87	13
Middle	336	31	93	22	136	20
Late	83	8	69	16	143	21
Flake Type						
Primary	26	2	15	3.5	12	1.8
Secondary	78	7	18	4.2	23	3.4
Interior	336	31	93	21.8	136	20
Bifacial Thinning	83	8	69	16.2	143	21
Fragment	516	48	213	50	342	50
Angular Fragment	43	4	18	4.2	26	3.8
Mean Weight	.509		.678		.576	

Monteagle Debitage Characteristics

As mentioned above, the three test units had a majority of debitage that lacked cortex, were not utilized, were not exposed to heat, and were size graded at one-quarter inch. When the test units are compared, percentages of cortex presence/absence and utilization/lack of utilization, are similar. However, Test Unit 1 has a heat exposure percentage that is almost half of the percentages in Test Units 2 and 3. Also, Test Unit 2 has a smaller percentage of one-quarter inch sized artifacts and, consequently, a larger percentage of artifacts sized graded at one-half inch.

Test Units 2 and 3 have similar percentages of early, middle, and late-stage debitage. Test Unit 1 differs from the other test units by an average of eleven percent more middle and less late-stage debitage. Primary flake percentage is larger in Test Unit 2 at 3.5 percent. Test Unit 1 has the highest percentages of secondary and interior flakes at 7 percent and 31 percent, respectively, and thus the lowest percentages of bifacial thinning flakes, 8 percent, and flake fragments, 48 percent. Angular fragment percentages are roughly 4 percent for each test unit. The mean weights across the test units are also similar. The weights are all close, with a 0.621grams average.

Discussion

The preceding observations identified patterns in the horizontal and vertical distribution of artifacts at Jot-em-Down. The vertical patterning assessed the stratigraphic integrity within each test unit, while horizontal patterning provided insight into the different activities conducted by the occupants across the site.

The vertical arrangement of temporally diagnostic projectile points helped to discern the stratigraphic integrity of the units. Projectile points recovered from Test Units 2 and

3 occurred in chronological order, and therefore support the inference that the lower levels of these units were undisturbed by previous illegal digging. To the contrary, Test Unit 1 had projectile points out of chronological order, suggesting the unit had been disturbed by previous looting or subsequent prehistoric activities. The horizontal patterning of temporally diagnostic projectile points suggests occupations at the site started about 7500 BC and lasted to nearly AD 1300.

The locally available Monteagle chert was the most frequently used lithic raw material found throughout the test units. As overall chert usage increased, as shown by increases of debitage frequency per unit level, more varieties of lithic materials were used. This was observed in all three units; however, due to disturbance documented in Test Unit 1, the appearance of vertical patterning is not reliable there.

The horizontal patterning of lithic material types reveals a fairly even distribution of cherts, although most are represented in percentages of less than one percent. Fort Payne and Haney cherts occurred throughout the shelter, being recovered from all test units. Knox and Boyle cherts were present in Test Unit 1 and 3. Chalcedony occurred in Test Units 1 and 2, while Breathitt only showed up in Test Unit 2. Unidentified chert was found in all test units.

The comparison of Monteagle chert debitage revealed that there was vertical patterning in each test unit. The majority of levels in each test unit had larger percentages of debitage without cortex that was not utilized or exposed to heat, and was one-quarter inch in size. The frequency of debitage increased from the top to the bottom of the excavation units, while overall percentages of flake attributes stayed fairly

constant. The only exceptions to this were in the lower levels, where artifact densities tapered off.

There was a similar trend across the site, with two exceptions. The percentage of heat exposed debitage was nearly two times less in Test Unit 1, and Test Unit 2 had a slightly smaller percentage of one-quarter inch sized debitage. However, the horizontal patterning showed similarities between the test units and thus, across the site.

Although frequencies and percentages were different for each test unit, the overall vertical pattern of flake types was similar. Primary and secondary flakes were the least represented. Interior flakes occurred slightly more frequently than bifacial thinning flakes, and flake fragments were the bulk of the debitage recovered. Angular fragments had percentages that were 7 percent or less in each level of the test units. The exceptions to this patterning were lower levels with few artifacts.

Observations of percentages across test units revealed some differences in horizontal patterns in flake type. Test Units 2 and 3 were more alike than either unit was similar to Test Unit 1. Test Unit 1 had larger percentages of secondary and interior flakes as well as smaller percentages of bifacial thinning flakes than the other two test units. The three units had similar percentages of flake and angular fragments. Test Units 2 and 3 had percentages comparable to the vertical patterning noted earlier which included, low percentages of primary and secondary flakes and angular fragments, close percentages between interior and bifacial thinning flakes, and the bulk of debitage in the two units was flake fragments. The differences observed in the horizontal debitage patterning in Test Unit 1 may have been a result of the disturbance believed to have taken place in that unit.

The observations of horizontal patterning would suggest that similar activities were occurring across the site, although perhaps to a lesser extent in the area around Test Unit 1. However, this could be due to the disturbed nature of the unit. Overall, the chert types recovered suggest that as shelter use intensified, as evidenced by larger debitage numbers, the use of non-local and other-than-Monteagle local materials increased. However, Monteagle remained the chert of choice throughout the site's long period of use and occupation.

The overall percentages of debitage lacking cortex suggests that most lithic materials arrived at the site in a reduced state. Although few pieces of debitage were utilized, they were most likely used at the site as expedient tools. The few debitage pieces that were exposed to heat may have been heat treated to make the materials more workable or could be the result of accidental exposure to forest and/or camp fires.

The size grades data suggest that similar types of knapping activities were occurring across the site. The uniformity of knapping activities is also evidenced by the comparable debitage flake types and mean weights in each unit. However, while flake type percentages in Test Unit 1 varied from those found in Test Units 2 and 3, all types were present in Test Unit 1 and the mean weight was comparable to the mean weights in the other two units.

Chapter 7 - Local Intersite Analyses

Comparison of Jot-em-Down to Open Sites: 15McY570 and 15McY616

Background

Sites 15McY570 and 15McY616 are prehistoric ridge crest sites located approximately 12 km west of Jot-em-Down Shelter (Figure 7.1). Site 15McY570 covered an area measuring 110 m N-S by 60 m E-W, and the portion of site15McY616 on National Forest Lands measured 80 m N-S by 50 m E-W. Site 15McY616 was planned for excavation after the site was damaged during timber operations. Three factors (disturbance caused by road construction, dense vegetation cover, and the partial location of the site on private land) reduced the amount of investigations that could occur at site 15McY616. Because of the constraints, site 15McY570, which was only 870 m east of site15McY616, was also investigated. The sites were excavated in September, 1996 (Sussenbach 1997).

The goal of the excavation was to evaluate the significance of the cultural remains at the two sites by: 1) defining the horizontal and vertical extents of deposits, 2) placing site occupations into temporal context, and 3) evaluating the integrity of the deposits at each site (Sussenbach 1997). Six square meters were excavated at site 15McY570, and 8.75 square meters at site 15McY616.

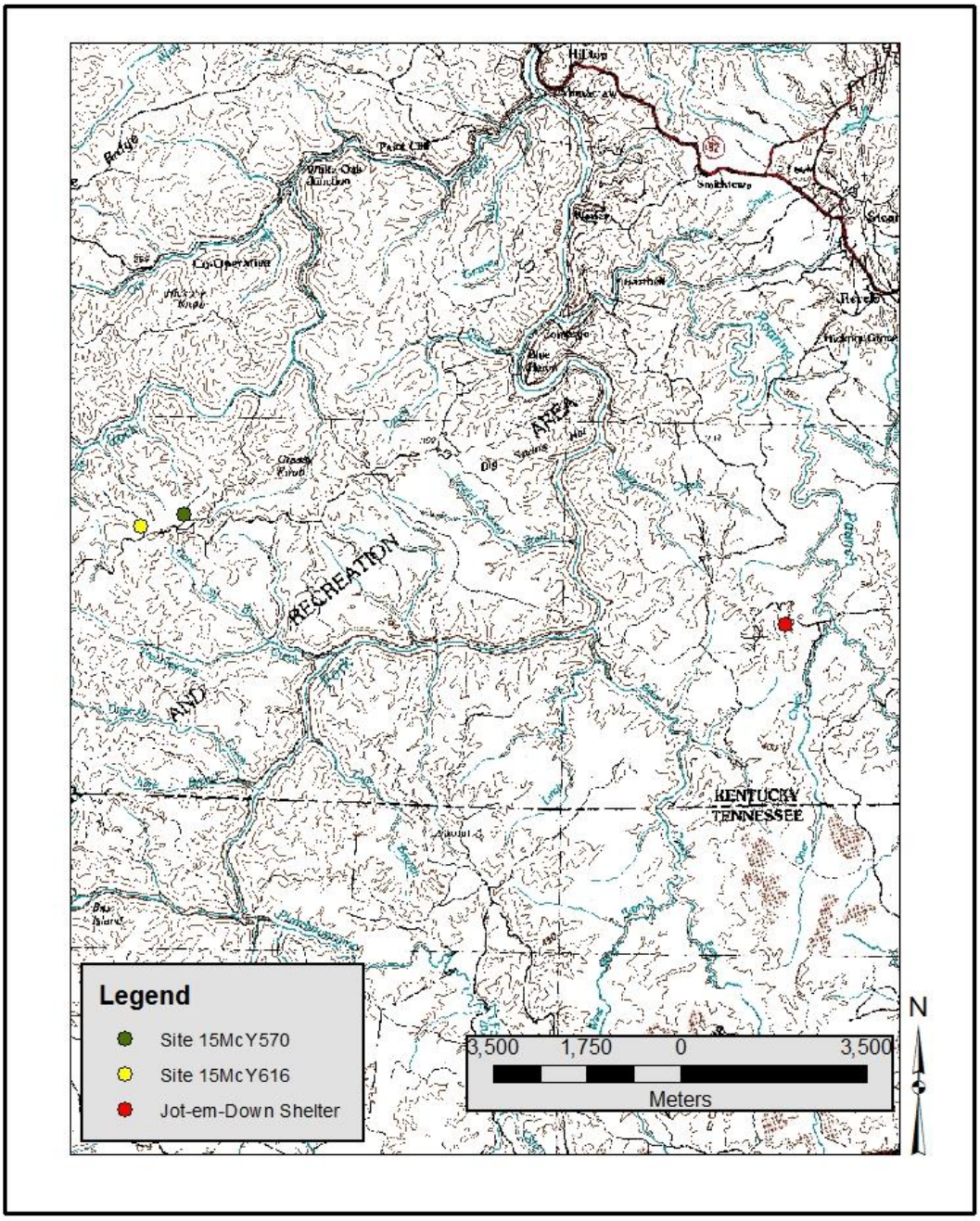

Figure 7.1: Location of Jot-em-Down, 15Mcy570, and 15McY616.

Investigations determined that both sites were utilized from the Early Archaic through the Late Archaic periods, and that material assemblages at the two sites were quite different. Site 15McY570 contained more nonlocal chert and far less chalcedony than site15McY616. Tools were more diverse at site 15McY616 and included unifacial scrapers, a drill, and early-stage bifaces. The larger debitage-to-tool ratio at site 15McY616, the larger percentages of cortex and early-stage debitage, and the presence of early-stage bifaces, indicated more early-stage reduction activities indicative of tool manufacturing occurred at site15McY616 than at site 15McY570 (Sussenbach 1997:134).

The ability to replicate the lithic analysis described and used by Tom Sussenbach in 1997, coupled with the proximity of sites15McY570 and 15McY616 to Jot-em-Down Shelter, made the comparison of the two open sites and the rockshelter possible and relevant. The following is a description of the results of that analysis and discussion.

Methods and Analysis

The Jot-em-Down Shelter data were combined and placed into Table 7.1 with the results of investigations at sites 15McY570 and 15McY616. The results entered in Table 7.1 from the two open sites were taken from Table 20 (Sussenbach 1997:81). Some adjustments were made to the Jot-em-Down Shelter data to allow for the comparison. Sussenbach described two types of Fort Payne chert, glossy and coarse. Only the chert described as glossy Fort Payne was identified at Jot-em-Down Shelter. Therefore, the Ft. Payne category in Table 7.1 includes the chert recovered from the rockshelter and the chert labeled as glossy Fort Payne by Sussenbach. Also, Sussenbach only collected one angular fragment from his excavation. He described the artifact, but did not include it in his Table 20. It was not added to Table 7.1 for the comparison of the sites.

Table 7.1: Comparison of Artifact Assemblages among Jot-em-Down, 15McY570, and 15McY616.

Variable/Value	Jot-em-Down		15McY570		15McY616	
	#	%	#	%	#	%
Chert Type						
Monteagle	2242	96	451	92.2	1296	91.4
Ft. Payne	37	1.6	21	4.3	26	1.8
Knox	7	0.3	-	-	-	-
Chalcedony	9	0.4	1	0.2	57	4.0
Haney	13	0.6	-	-	-	-
Breathitt	2	.09	-	-	-	-
Boyle	5	0.2	-	-	1	0.1
Coarse Ft. Payne	-	-	8	1.6	10	0.7
Mottled Wayne County	-	-	2	0.4	10	0.7
Dover	-	-	1	0.2	-	-
Unidentified	21	0.9	5	1.0	18	1.3
Local/Nonlocal Chert						
Local	2258	97	452	92.4	1353	95.4
Nonlocal	78	3	37	7.6	65	4.6
Monteagle Chert Debitage						
Cortex						
Present	447	20	51	11.4	373	29
Absent	1743	80	396	88.6	913	71
Utilized						
Yes	201	9	20	4.5	47	3.7
No	1989	91	427	95.5	1239	96.3
Heat Exposed						
Yes	291	13	75	16.8	200	15.6
No	1899	87	372	83.2	1086	84.4
Size						
one-quarter inch	1867	85	412	92.2	1135	88.3
one-half inch	323	15	35	7.8	151	11.7
Stage						
Early	172	16.7	18	10.0	197	32.1
Middle	565	54.7	23	12.8	94	15.3
Late	295	28.6	139	77.2	323	52.6
Flake Type						
Primary	53	2.4	2	0.4	35	2.7
Secondary	119	5.4	16	3.6	162	12.6
Interior	565	26	23	5.1	94	7.3
Bifacial Thinning	295	13	139	31.1	323	25.1
Fragment	1071	49	266	59.5	672	52.3
Angular Fragment	87	4	-	-	-	-
Mean Weight	0.59		0.46		0.59	
Debitage-to-Tool Ratio	39:1		53:1		94:1	

Additional adjustments were made to the Jot-em-Down Shelter data. The earlier intrasite comparison tables included flake fragments with cortex in the total of early-stage debitage. These figures were not comparable to sites 15McY570 and 15McY616 data where no flake fragments were added. Therefore, the flake fragment amounts from Jot-em-Down were subtracted from the early-stage total. Also noted was the fact that percentages of debitage stages at Jot-em-Down were based on the percentage of the entire Monteagle debitage assemblage. This was not the case for sites 15McY570 and 15McY616. Therefore, percentages for Jot-em-Down Shelter were recalculated after the removal of flake fragments, and the percentages shown in Table 7.1 are based on the percentage of the total of early-, middle-, and late-stage debitage only. Comparisons between sites were based on chert types, tool assemblages, tool to debitage ratios, and the seven variables recorded on Monteagle chert debitage.

Chert Types

Seven lithic raw material types were identified from Jot-em-Down Shelter, and consisted of Monteagle, Fort Payne, Knox, chalcedony, Haney, Breathitt, and Boyle. Three of the seven were also found at site15McY570, and four were collected at site 15McY616. There was no Knox, Haney or Breathitt chert recovered from the open sites, and no Coarse Fort Payne, Mottled Wayne County, or Dover chert collected at the rockshelter.

Monteagle was the predominant chert at each site, comprising 96 percent of lithic materials at Jot-em-Down Shelter, 92.2 percent at site 15McY570, and 91.4 percent at site 15McY616. The percentage of chalcedony, a local material, was greater at site 15McY616 (4.0 percent) (Table 7.1). That was ten times the percentage found at Jot-

em-Down, and twenty times the percentage at site 15McY570. Site 15McY570 had the largest occurrence of Fort Payne chert (4.3 percent). This was more than double the amount recovered from either of the other sites. Boyle chert was collected only from Jot-em-Down and site 15McY616, and accounted for 0.2 percent and 0.1 percent, respectively. At roughly 1.0 percent, all three sites had similar percentages of unidentified chert. Site 15McY570 had the largest percentage (7.6 percent) of non-local chert. Site 15McY616 had 4.6 percent, and Jot-em-Down had only 3 percent non-local chert.

Tool Assemblages

A total of thirty-three projectile points were recovered from Jot-em-Down. The majority (n=28) were made from Monteagle chert; two were made from Fort Payne, and one each from Knox, Haney, and an unidentified chert. Site 15McY570 produced only three projectile points, two made from Monteagle chert and one from Fort Payne chert. Eight projectile points were collected from site 15McY616: five manufactured from Monteagle chert, and one each from chalcedony, Coarse Fort Payne, and an unknown chert.

Five early-stage bifaces were collected from Jot-em-Down, and two from site 15McY616. Six of the seven were made from Monteagle chert. The additional early-stage biface was from Jot-em-Down and was made from chalcedony. It was the only 1" artifact in the Jot-em-Down assemblage.

All three sites had late-stage bifaces: fifteen from Jot-em-Down, six from 15McY570, and two from 15McY616. Nineteen of the late-stage bifaces were manufactured from Monteagle chert. The exceptions were one biface fragment from Jot-em-Down that was

made from an unidentified chert, and three of the six late-stage bifaces from site 15McY570. Two of those were made from Fort Payne and one was made from Mottled Wayne County chert.

Eight unifaces manufactured from Monteagle chert were collected: six from Jot-em-Down and two from site 15McY616. One additional tool was identified from site 15McY616 and consisted of a drill fragment fashioned from Fort Payne chert. Although placed in the late-stage biface category, it should be noted that a drill fragment and an endscraper made from Monteagle chert were recovered from Jot-em-Down.

Debitage-to-Tool Ratios

The debitage-to-tool ratios differ among the three sites. Jot-em-Down and site 15McY570 are the most similar, with 39:1 and 53:1, respectively. Site 15McY616 has a larger ratio of 94:1. "The tool to debitage ratio typically reflects the relative extent of tool manufacturing versus tool maintenance with larger ratios indicative of more tool production activities and lower ratios suggesting more tool maintenance activities" (Sussenbach,1997:82).

These data suggest that tool maintenance was the major lithic activity at Jot-em-Down, and tool production was the main activity at site 15McY616. Lithic activity at site 15McY570 appears to have been geared more toward tool production, but not as much as at site 15McY616.

Monteagle Chert Variables

Just like at Jot-em-Down, the majority of Monteagle debitage recovered from the other two sites lacked cortex, had not been utilized or exposed to heat, and was size graded at one-quarter inch. However, there are differences between the sites. The

percentage of cortex varies roughly 9 percent between the sites, with 11.4 percent at site 15McY570, 20 percent at Jot-em-Down, and 29 percent at site 15McY616. The utilization percentage a Jot-em-Down was 9 percent, twice as high as the utilization percentage at site 15McY570, and more than twice as high as the percent of utilized Monteagle debitage at site 15McY616. Percentages of heat exposure were relatively close between the sites. Jot-em-Down had a percentage of 13 percent, site 15McY616 15.6 percent, and site 15McY570 16.8 percent. At 92.2 percent, site 15McY570 had a larger percentage of one-quarter-inch-sized Monteagle debitage. The percentages of one-quarter-inch-sized debitage were closer at Jot-em-Down and site 15McY616 at 85 percent and 88.3 percent, respectively.

Early-stage Monteagle debitage was more prevalent at site 15McY616 (32.1 percent), nearly twice the percentage as Jot-em-Down, and more than three times the percentage of early-stage debitage collected at site 15McY570. Jot-em-Down had the highest percentage (54.7 percent) of middle-stage debitage. That was more than four times the percentage found at site 15McY570, and three times the percentage of what was recovered at site 15McY616. The percentage of late-stage debitage was closer between sites 15McY570 and 15McY616 with 77.2 percent and 52.6 percent, respectively. Late-stage debitage at Jot-em-Down was only 28.6 percent of the Monteagle debitage at that site.

Most flake types are represented in the three reduction stages. Primary and secondary flakes comprise early-stage reduction, interior flakes middle-stage, and bifacial thinning flakes make up the late-stage. Flake fragments and angular fragments are byproducts of lithic reduction at each stage, so cannot easily be assigned to a particular stage. As

previously mentioned, only one angular fragment was identified from the excavation of sites15McY570 and 15McY616, so no comparison with Jot-em-Down could be made. Flake fragments were identified at each site with 15McY570 having the highest percentage at 59.5 percent. Site 15McY616 had a similar percentage (52.3 percent) and Jot-em-Down had 49 percent.

Discussion

This comparison of Jot-em-Down to two nearby open sites provides insight into differences and similarities of the activities at a rockshelter site and two open ridge crest sites. First, it was noted that the locally available Monteagle chert is the predominant lithic material used at both site types. Although utilized to different degrees, chalcedony was also present at each site type. Knox is a local chert, but was only found at Jot-em-Down. These three materials would have been procured from nearby areas.

Fort Payne chert was also used at all three sites. It was available to the west in the Cumberland River drainage in areas both in Kentucky and Tennessee. The other cherts present at the sites were less prevalent and only recovered from one or two of the sites. However, each site has artifacts from four of the non-local cherts. These non-local cherts hint at areas of travel or trade that were exploited by occupants of the three sites. These cherts include Haney from the Kentucky/Red River area, Breathitt from the Upper Kentucky River watershed, Boyle located in streams in the Outer Bluegrass, Mottled Wayne County found to the west in the adjacent county, and Dover, which is from western Kentucky and Tennessee.

The Monteagle chert debitage characteristics varied between the sites. Except for three chert flakes from the open sites, which were made from unidentified chert, all

debitage with cortex was from Monteagle (Table 7.1; Sussenbach 1997: Table 10). This suggests that all other materials recovered were manipulated in other locations and carried to the sites as preforms or finished tools.

It was noted that the early reduction of Monteagle was most evident at site 15McY616 and Jot-em-Down, with a much smaller percentage at site 15McY570. This smaller percentage of cortex at site 15McY570 corresponds with the evidence of more non-local chert at that site compared to the percentages at Jot-em-Down and site 15McY616.

The larger percentage of utilization shown at Jot-em-Down suggests longer, more settled or repeated patterns of human occupation at that site. Spending longer time in an area would increase the need for expedient tools. The access to debitage that could easily be utilized or modified for use would help prolong the life of projectile points and other tools.

The exposure to heat percentages is fairly similar among the sites. Sussenbach (1997) concluded that the heat exposure he recorded at sites 15McY570 and 15McY616 was probably caused by post-depositional activity, such as forest fire, and not prehistoric activities. Although Jot-em-Down is not as susceptible to forest fire, due to the lack of leaf litter in the shelter, there is not enough evidence that any intentional chert modification by fire occurred at the site. Percentages of heat exposure throughout the deposits at Jot-em-Down are fairly constant. The exposure may just represent incidental contact with camp fires. Test Unit 1 of Jot-em-Down had a much smaller percentage of heat exposed debitage (9 %) when compared to the other two test units at that site, but this may be a result of the majority of the test unit being located outside the dripline, and thus away from interior camp fires.

Sussenbach (1997) concluded that the difference in debitage size between sites 15McY570 and 15McY616 was due to an emphasis on tool production using local materials at site 15McY616. At first glance, this explanation does not seem to account for the similar debitage size percentages between Jot-em-Down and site 15McY616, since Jot-em-Down has a much smaller debitage-to-tool ratio, suggesting more emphasis on tool maintenance than tool production. However, Jot-em-Down and site 15McY616 do share similar percentages of debitage with cortex. So, perhaps a mixture of tool production and maintenance occurred at Jot-em-Down.

This pattern is also indicated when debitage reduction stages are compared. There was roughly double the percentage of early-stage reduction debitage at site 15McY616 versus Jot-em-Down. This suggests that site 15McY616 was utilized as an open, upland lithic reduction workshop camp (Sharp et al. 2001). Because the chert was local, and therefore easily transported, some initial knapping resulting in early-stage debitage also occurred at Jot-em-Down, but on a smaller scale. The small percentage of early-stage debitage at site15McY570 (10 percent) also suggests that less tool production using local materials was occurring at that site.

The relatively high percentage of middle-stage reduction debitage at Jot-em-Down compared to the smaller, similar percentages at the open sites suggests that more tools were further reduced and shaped at the rockshelter. This may be the result of longer or repeated occupations at the rockshelter. However, sites 15McY570 and 15McY616 have much larger percentages of late-stage reduction debitage and larger debitage-to-tool ratios suggesting that tool production was occurring at those sites more so than at Jot-em-Down. The high percentage of middle-stage reduction debitage at Jot-em-Down may be

the result of a mixture of tool production and maintenance at the shelter. Even so, the debitage-to-tool ratio suggests that tool maintenance was the larger endeavor. This would account for the smaller percentage of late-stage debitage and might even suggest that late refinement of tools occurred more often at open sites that were temporary hunting/foraging camps.

Comparison of Jot-em-Down to Rockshelter Sites: 15McY403 and15McY409

Background

Sites 15McY403 and 15McY409 are rockshelter sites located approximately 15 km northeast of Jot-em-Down Shelter. Sites 15McY403 and 15McY409 are about 450 m apart and are in the headwaters of Barren Fork in central McCreary County, Kentucky (Figure 7.2). Both of the sites are located at an elevation of 1200' amsl. Site 15McY403 faces southwest and measures 20 m long by 4 m deep. The average height of the shelter is 1.5 m at the dripline, and lowers to a height of 50 cm or less near the back wall. Site 15McY409 is a northwest facing, long, narrow rockshelter, which measures 37 m long by 5 m deep. It ranges in height from 0.5 m near the back wall to 3 m at the dripline.

The sites were excavated in 2000 due to a land exchange agreement between the Daniel Boone National Forest and the McCreary County Board of Education. The goal of the project was to assess the significance of the two sites and their potential eligibility for listing on the National Register of Historic Places (Boedy 2001).

Investigations at site 15McY403 consisted of the excavation of nine screened shovel tests (50 cm by 50 cm), and the excavation of two larger test units (1 x 2 m and 1.5 m). Investigations at site 15McY409 consisted of three 1 x 2 m test units and one 1 x 1 m test unit. Similarities between the sites included location, size, amount of disturbance, artifact

densities, absence of features and perishable remains, preference for local chert resources, a generalized biface reduction strategy, the presence of very limited vertical and horizontal stratigraphy, and a relatively limited range of tool types. In addition, both sites were occupied during the Middle Woodland and the Late Woodland/Mississippi periods (Boedy 2001:4).

The lithic analysis completed on rockshelter sites 15McY403 and 15McY409 was modeled after the analysis that Tom Sussenbach conducted at sites 15McY570 and 15McY616 in 1997. The ability to replicate the lithic analysis described and used by Boedy and Sussenbach made the comparison of the three rockshelters possible. The proximity of rockshelter sites 15McY403 and 15McY409 to Jot-em-Down Shelter made the comparison relevant. The following is a description of the results of that analysis and discussion.

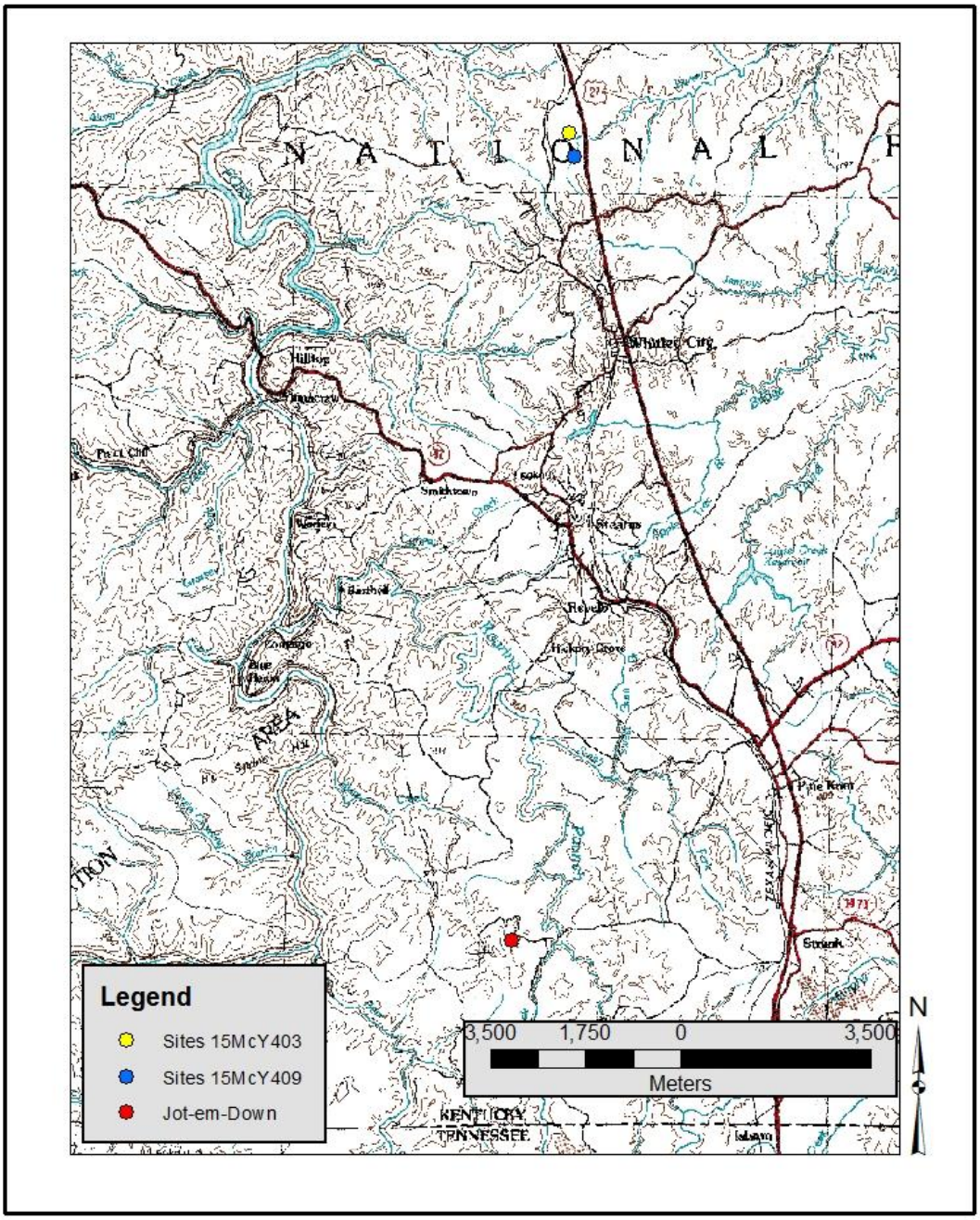

Figure 7.2: Location of Jot-em-Down, 15McY403, and 15McY409.

Methods and Analysis

The results of the lithic analysis of the three test units at Jot-em-Down Shelter were combined and placed into Table 7.2 along with the results of investigations of sites 15McY403 and 15McY409. The results entered in Table 7.2 from sites 15McY403 and 15McY409 were compiled from individual unit data recorded in Tables 10 and 11 (Boedy 2001:55 and 57). Additionally, debitage-to-tool ratios were copied from Boedy's Tables 7 and 8. No mean weights were available for comparison.

The Jot-em-Down information was copied from Table 7.1 as it had been modified for comparison to sites 15McY570 and 15McY616. Boedy (2001) described Glossy Fort Payne chert which was the same material identified as Fort Payne at Jot-em-Down. Therefore, the Fort Payne category in Table 7.2 includes the artifacts recovered from Jot-em-Down as well as the artifacts manufactured from the chert labeled Glossy Fort Payne by Boedy.

Angular fragments were classified by Boedy (2001) in Table 6; however, he did not include the totals in Tables 10 and 11. The data for just Monteagle debitage could not be pulled separately from Table 6; therefore, there is no comparison of angular fragments between the three rockshelters.

The additional modifications to the Jot-em-Down data for the open site comparison were left in place to aid in the comparison between the rockshelter data. The modifications included removing flake fragments with cortex that had been added into early reduction stage debitage totals, and basing reduction stage percentages on the total early, middle, and late-stage debitage only. Earlier, in intrasite comparisons, the reduction stage percentages were based on the entire Monteagle debitage assemblage.

The comparisons made among rockshelters were based on chert types, tool assemblages, tool to debitage ratios, and the seven variables recorded for Monteagle chert debitage.

Table 7.2: Comparison of Artifact Assemblages among Jot-em-Down, 15McY403, and 15McY409.

Variable/Value	Jot-em-Down				15McY403				15McY409			
	#	%			#	%			#	%		
Chert Type												
Monteagle	2190	96.2			259	97			265	98.5		
Ft. Payne	35	1.5			3	1			1	0.4		
Knox	6	0.3			-	-			-	-		
Chalcedony	8	0.4			-	-			2	0.7		
Haney	12	0.5			-	-			-	-		
Breathitt	2	.09			-	-			-	-		
Boyle	5	0.2			-	-			-	-		
Coarse Ft. Payne	-	-			-	-			-	-		
Mottled Wayne County	-	-			-	-			-	-		
St. Louis	-	-			2	0.7			1	0.4		
Dover	-	-			-	-			-	-		
Unidentified	19	0.8			3	1			-	-		
Local/Nonlocal Chert												
Local	2204	97.7			259	97			267	99.3		
Nonlocal	54	2.3			8	3			2	0.7		
Monteagle Chert Debitage												
Cortex												
Present	447	20			44	17			47	17.7		
Absent	1743	80			215	83			219	82.3		
Utilized												
Yes	201	9			1	0.4			5	2		
No	1989	91			258	99.6			261	98		
Heat Exposed												
Yes	291	13			27	10.4			30	11		
No	1899	87			232	89.6			236	89		
Size												
one-quarter inch	1867	85			211	81.5			221	83		
one-half inch	323	15			48	18.5			45	17		
Stage												
Early	172	16.7			17	17			14	18		
Middle	565	54.7			59	58			42	53		
Late	295	28.6			26	25			23	29		
Flake Type												
Primary	53	2.4			1	0.4			3	1.1		
Secondary	119	5.4			16	6.2			13	4.9		
Interior	565	26			64	24.7			42	15.8		
Bifacial Thinning	295	13			26	10			21	7.9		
Fragment	1071	49			152	58.7			186	70.2		
Angular Fragment	87	4			-	-			-	-		
Mean Weight	0.59				-				-			
Debitage-to-Tool Ratio	39:1				30:1				90:1			

Chert Types

Seven lithic material types were identified from Jot-em-Down Shelter, and consisted of Monteagle, Fort Payne, Knox, chalcedony, Haney, Breathitt, and Boyle. Two of the seven were found at site 15McY403, Monteagle and Fort Payne. Three of the seven materials were collected at site 15McY409, Monteagle, Fort Payne and chalcedony. In addition, St. Louis chert was recovered from sites 15McY403 and 15McY409, but not Jot-em-Down.

The lithic material most prevalent at the three rockshelters was Monteagle chert. Artifacts manufactured from Monteagle were 96.2 percent of the lithic assemblage at Jot-em-Down, 97 percent at site 15McY403, and 98.5 percent at site 15McY409. Chalcedony, a local material, accounted for only 0.4 percent of artifacts collected at Jot-em-Down, and only 0.7 percent at site 15McY409. Percentages were similar at Jot-em-Down (1.5%) and site 15McY403 (1%), but much smaller at site 15McY409 (0.4 %). The St. Louis chert percentages were 0.7 percent at site 15McY403 and 0.4 percent at site 15McY409. One percent of the assemblage from site 15McY403, and 0.8 percent from Jot-em-Down were fashioned from unidentified chert. With a high percentage of Monteagle and the highest percentage of chalcedony, site 15McY409 had the highest percentage of local material at 99.3 percent. Jot-em-Down and site 15McY403 had similar percentages of local lithic material with 97.7 percent and 97 percent, respectively. Site 15McY403 had the highest percentage of non-local chert with 3 percent, Jot-em-Down had 2.3 percent, and site15McY409 had 0.7 percent.

Tool Assemblages

Thirty-three projectile points were recovered from Jot-em-Down. The majority

(n = 28) were made from Monteagle chert; two were made from Fort Payne, and one each from Haney and an unidentified chert. Site 15McY403 had seven projectile points made from Monteagle chert. One projectile point was collected from site 15McY409, and it was manufactured from Monteagle.

Five early-stage bifaces were collected from Jot-em-Down, four from site 15McY403, and two from site 15McY409. Ten of the eleven were made from Monteagle chert. The remaining early-stage biface was from site 15McY403 and was made from Fort Payne chert.

All three rockshelters contained late-stage bifaces. There were fifteen from Jot-em-Down, three from site 15McY403, and five from site 15McY409. One of the bifaces from Jot-em-Down was manufactured from an unidentified chert. The other twenty-two late-stage bifaces from the three rockshelters were made from Monteagle chert.

Six unifaces manufactured from Monteagle chert were collected from Jot-em-Down. No unifaces were collected from the other rockshelters. Two drill fragments made from Monteagle were recovered from site 15McY403. Although placed in the late-stage biface category, it should be noted that a drill fragment and an endscraper made from Monteagle chert were recovered from Jot-em-Down.

Debitage-to-Tool Ratios

The debitage-to-tool ratio calculated for site 15McY403 was based only on nine of the sixteen recovered tools, and the ratio for site 15McY409 was based on three of eight tools. This was due to the other tools being collected from disturbed deposits (Boedy 2001). No attempt was made to distinguish between tools collected in disturbed versus undisturbed contexts at Jot-em-Down. This could skew the results of this comparison.

Jot-em-Down and site 15McY403 had the most similar ratios with 39:1 and 30:1, respectively. Site15McY409 had a significantly larger ratio of 90:1. Tool maintenance appears to have been the main lithic activities at both Jot-em-Down and site 15McY403. With the larger ratio, the occupants of site 15McY409 appear to have concentrated more on tool production.

Monteagle Chert Variables

The overall pattern of the Monteagle debitage at the two rockshelters, 15McY403 and 15McY409, was very similar to the percentages recorded at Jot-em-Down and the two open sites, 15McY570 and 15McY616. The majority of Monteagle debitage at the rockshelters lacked cortex, was rarely utilized or exposed to heat, and was sized graded at one-quarter inch.

In comparison to Jot-em-Down, the two rockshelters had slightly less cortex present. Jot-em-Down had 20 percent, site 15McY403 had 17 percent, and site 15McY409 had 17.7 percent. The percentage of utilized debitage was much larger at Jot-em-Down, 9 percent, compared to 2 percent at site 15McY409, and only 0.4 percent at site 15McY403. Heat exposure was similar at the three sites, 13 percent at Jot-em-Down, 11 percent at site 15McY409, and 10.4 percent at site 15McY403. The size grades of debitage were very similar at the three rockshelters. Eighty-five percent of the debitage at Jot-em-Down was in the one-quarter inch size category compared to 83 percent at site 15McY409, and 81.5 percent at site 15McY403.

The stages of debitage reduction were also similar across the three rockshelters. Site 15McY409 had 18 percent early-stage reduction debitage. Site 15McY403 was close with 17 percent, and Jot-em-Down had 16.7 percent. The percentage of middle stage

reduction debitage was slightly larger at site 15McY403 (58 %). Jot-em-Down and site 15McY409 had percentages closer to each other at 54.7 percent and 53 percent, respectively. Like the middle stage, site 15McY409 and Jot-em-Down had late-stage debitage percentages closer to each other than to site 15McY403. Site 15McY409 had 29 percent late-stage, Jot-em-Down had 28.6, and site 15McY403 had 25 percent.

The percentage of primary flakes was 2.4 percent at Jot-em-Down. That was more than double the percentage at site 15McY409 (1.1 %), and six times more than the percentage of primary flakes at site 15McY403 (0.4 %). Site 15McY403 had the highest percentage of secondary flakes at 6.2 percent. Jot-em-Down and site 15McY409 followed closely with 5.4 percent and 4.9 percent, respectively. Percentages of interior flakes were similar at Jot-em-Down (26 %), and site 15McY403 (24.7 %). The interior flake percentage was smaller at site 15McY409 (15.8 %). The bifacial thinning flake percentage was also smaller at site 15McY409 (7.9 %). In contrast, Jot-em-Down had 13 percent bifacial thinning flakes, and site 15McY403 had 10 percent. The highest percentages of debitage for all three rockshelters sites were flake fragments. Site 15McY409 had the top percentage with 70.2 percent. That was followed by site 15McY403 (58.7 %), and Jot-em-Down (49 %).

Discussion

The comparison of the rockshelter sites, 15McY403 and 15McY409, to the Jot-em-Down Shelter, identified similarities and differences. The majority of artifacts recovered from all three sites were manufactured from the locally available Monteagle chert. Two of three additional cherts identified at sites 15McY203 and 15McY409 were also found at Jot-em-Down. Monteagle debitage characteristics were similar among the three sites.

On average, 82 percent of the debitage lacked cortex, 96 percent was not utilized, 89 percent was not exposed to heat, and 83 percent was sized at one-quarter inch.

The debitage reduction stages were represented fairly equally among the sites. Similar percentages in the reduction categories suggest that similar tool production was occurring at each site. This is also evidenced by the presence of both early and late-stage bifaces at the sites. Early-stage bifaces represent a reduction stage which produces blanks that can be manufactured further into projectile points and other tools. Late-stage bifaces represent the finished tools. In addition, drill fragments found at Jot-em-Down and site 15McY403 indicate that perforation activities were occurring at those two sites.

One of the first differences noted among the sites were the percentages of flake types. Although the percentage of early-stage reduction debitage is roughly the same among the sites, it is apparent that more initial reduction of Monteagle cores was conducted at Jot-em-Down when compared to the other sites. However, this could just be due to a small number of artifacts representing primary flakes at the other two rockshelters.

It is not clear why the flake type percentages at site 15McY409 vary so much from the other two rockshelters. Percentages of interior and bifacial thinning flakes were smaller and the flake fragment percentage was comparably larger. But, with such a high debitage-to-tool ratio of 90:1, low percentages of interior and bifacial thinning flakes, and comparably larger percentages of flake fragments, it would appear the occupants of site 15McY409 were knapping a lot, but not producing tools. However, these findings may just be the result of the disturbance noted at the shelter.

Although comparable in many categories, Jot-em-Down is different from the other two shelters in two key areas. First, at 50 m long by 8 m deep by 10 m high, the Jot-em-

Down Shelter is larger than the other two rockshelters. Following Naroll's (1962) formula of 10 m^2 per individual, and estimating the portion of Jot-em-Down that was the most habitable, it is estimated that approximately 15 - 20 people could have occupied the site comfortably at one time. A group that size probably would have included two or three related family groups. In contrast, Boedy (2001) estimated that small family units or hunting bands of 5-7 individuals would have used site 15McY403 or site 15McY409 at one time. Second, Jot-em-Down was occupied longer, from the Early Archaic period through the Late Woodland/Mississippi period. Sites 15McY403 and 15McY409 were occupied during Middle Woodland and Late Woodland/Mississippi periods.

The time span represented at Jot-em-Down, coupled with the size of livable space, helps to explain the other differences noted between rockshelters. The presence of end scrapers and unifaces at Jot-em-Down, but not at the other rockshelters, suggests that more activities, including possibly hide processing, were occurring. A high incidence of utilized flakes suggest a more settled group of people who spent longer periods at Jot-em-Down, and made use of excess flakes as expedient tools. The larger percentage of primary flakes may indicate Jot-em-Down was used as more of a home base where procured, unmodified local Monteagle chert was taken to be further utilized. Sites 15McY403 and 15McY409 appear to have been used more as temporary camps during fewer, later prehistoric periods by smaller groups of people (Boedy 2001). While Jot-em-Down was inhabited by larger groups that used the shelter during more prehistoric periods, stayed longer, and engaged in more activities.

Chapter 8 - Regional Intersite Analyses

Comparison of Jot-em-Down to Cold Oak Shelter and Rock Bridge Shelter

Background

In her dissertation, Applegate (1997) addressed shelter use and lithic analysis to evaluate diachronic changes in prehistoric rockshelter occupations. Her study concentrated on two rockshelters found in/near the Red River Gorge, Cold Oak Shelter (15LE50) and Rock Bridge Shelter (15WO75). Figure 8.1 shows the location of the two rockshelters.

Cold Oak is an eastern-facing shelter above an unnamed feeder stream that drains into Cold Oak Hollow. The shelter measures 40 m long by 15 m wide by 30 m high. The living space was noted at 20 m by 10 m. The site was occupied in the Terminal Archaic and Woodland periods. Excavations were carried out at the site in 1984 to determine if the site was eligible for listing on the National Register of Historic Places (O'Steen et al. 1991). At that time, a trench was placed perpendicular to the backwall in the center of the shelter, extending from the backwall to dripline. The trench was excavated as seven 1 m by 1 m units, and it was determined the site was eligible for listing on the National Register (O'Steen et al. 1991).

Archaeological investigations were continued in 1994, and Applegate was a field crew member. A trench was laid out south of and parallel to the 1984 trench. Five 1 x 1 m units were excavated. It was the information, particularly the lithic remains, gathered during this excavation that was used by Applegate in her research (Applegate 1997).

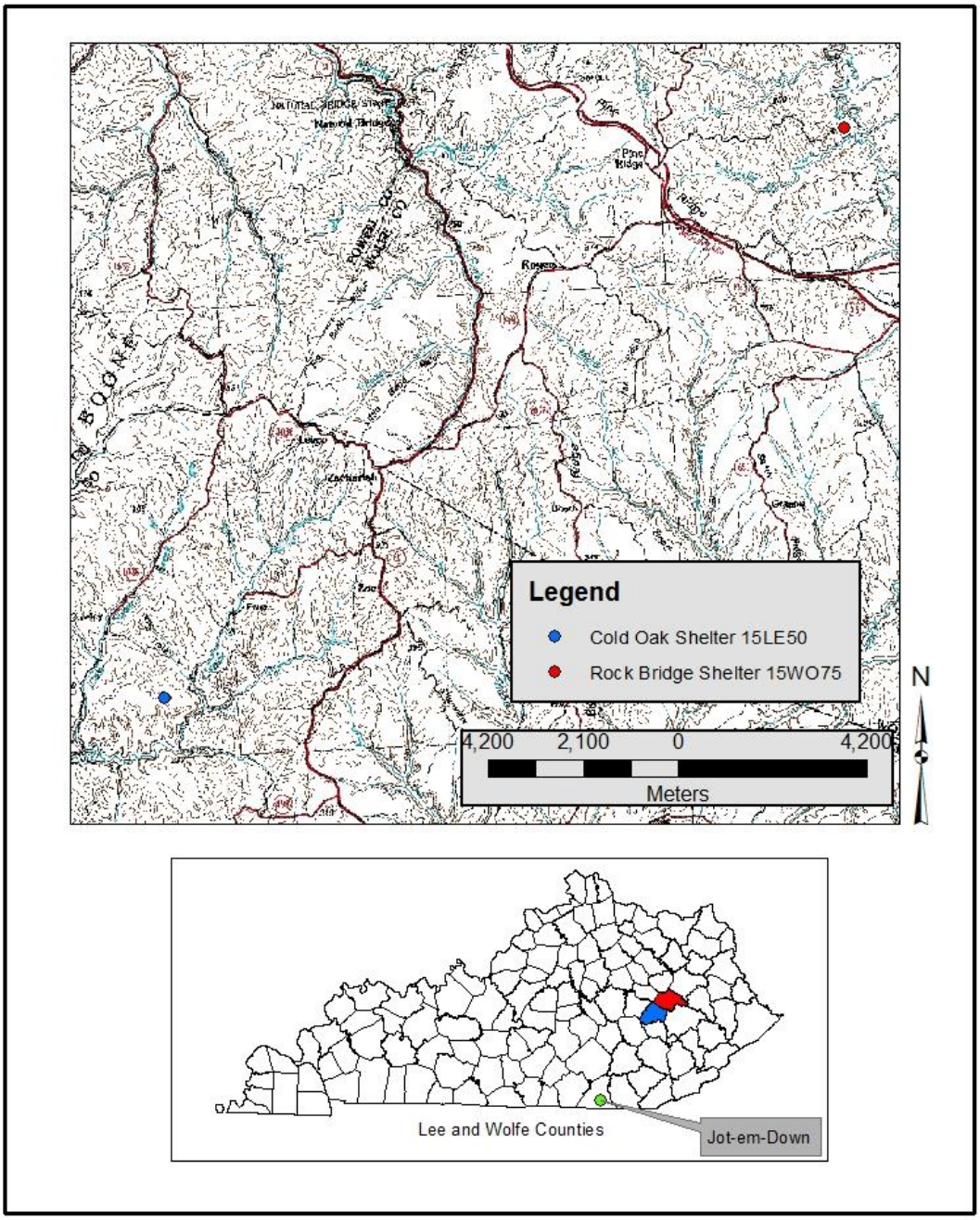

Figure 8.1: Location of Cold Oak and Rock Bridge Shelters.

Rock Bridge Shelter (15WO75) is north of Cold Oak Shelter in the Red River Gorge in Wolfe County, Kentucky. The shelter measures 40 m long by 8 m wide by 1-3 m high and faces west. Rock Bridge is a single component site, only utilized during the Late Woodland period.

Excavations were conducted in 1992 in order "to obtain data relevant to the subsistence and settlement patterns of Late Woodland populations occupying the Red River Gorge area" (Gremillion 1993b:ii). Twenty-two 1 x 1 m units were excavated. Again, Applegate was a member of the field crew, and used the data gathered, specifically lithics, to conduct her research.

Methods and Analysis

Because the extent and purpose of the research at Cold Oak and Rock Bridge Shelters was different than the research and analysis at Jot-em-Down, it was not feasible to compare the three rockshelters in the same way that comparisons were made with other McCreary County sites that had been analyzed similarly. No Monteagle chert was present at Cold Oak or Rock Bridge, so no comparisons of that chert type were possible. However, with the descriptions provided, it was possible to match the flake categories used to sort lithics from Cold Oak and Rock Bridge to those employed at Jot-em-Down, and sites 15McY403, 15McY409, 15McY570, and 15McY616. Seven flake categories were matched with the six used at Jot-em-Down. Table 8.1 below shows how the categories were combined for the comparison of the three rockshelters. For more information on the Cold Oak Shelter and Rock Bridge Shelter categories, see Applegate (1997:104-105).

Table 8.1: Combined Lithic Categories.

Lithic Categories Used for Jot-em-Down Analysis	Lithic Categories Used for Cold Oak and Rock Bridge Analysis
Primary	Primary Decortication Flake
Secondary	Secondary Decortication Flake
Interior	Primary
Interior	Secondary
Bifacial Thinning	Thinning Flake
Fragment	Broken Flakes
Angular Fragment	Debris

Those categories were further combined, as they were at Jot-em-Down, to reduction stages. The Jot-em-Down categories of primary and secondary debitage were combined into an early reduction stage category. Middle reduction stage flakes consisted of those identified as interior flakes, and late reduction stages were bifacial thinning flakes.

Debitage-to-tool ratios were calculated from artifact numbers presented in Table 9 (Applegate 1997:311). However, the tools and tool fragments identified at Cold Oak and Rock Bridge Shelters are categorized differently than those at Jot-em-Down. For example, Applegate (1997) categorized modified and utilized flakes as tools, but modification and utilization were categorized as flake attributes for debitage analyzed from Jot-em-Down. Therefore, the interpretation of the ratio is possible for each site, but the comparison of the ratio between sites is not practical. Table 8.2 shows the flake totals of all chert types present at the three rockshelters and debitage-to-tool ratios for comparison.

Table 8.2: Comparison of Artifact Assemblages of Jot-em-Down, Cold Oak, and Rock Bridge.

Variable/Value	Jot-em-Down				Cold Oak				Rock Bridge			
	#	%			#	%			#	%		
Stage												
Early	173	16.1			293	23.6			52	18.7		
Middle	594	55.2			609	49.2			120	43.2		
Late	310	28.8			336	27.1			106	38.1		
Flake Type												
Primary	53	2.3			17	0.9			1	0.2		
Secondary	120	5.3			276	14.9			51	10.5		
Interior	594	26.2			609	33.1			120	25		
Bifacial Thinning	310	13.7			336	18.2			106	22		
Fragment	1100	48.5			448	24.3			174	36		
Angular Fragment	92	4.1			156	8.5			31	6.4		
Debitage-to-Tool Ratio	39:1				81:1				28:1			

Chert Types

Although different cherts were utilized at Cold Oak and Rock Bridge Shelters, patterns similar to those recorded for Monteagle chert at Jot-em-Down were noted. Eight varieties of chert were identified at Cold Oak and included, Haney, St. Louis, Boyle, Breathitt, Kanawha, Muldraugh, Paoli, and Ste. Genevieve. Local cherts accounted for three-quarters of the lithic artifacts, and half of the chert artifacts were made from Haney or St. Louis chert. At Rock Bridge, seven chert varieties were collected (Haney, Paoli, Boyle, Breathitt, Kanawha, St. Louis, and Ste. Genevieve). The majority of the cherts were local, and 80 percent of all artifacts were made from Haney and Paoli.

This great reliance on local cherts follows the pattern seen at Jot-em-Down, where 96 percent of the artifacts were made from Monteagle chert. When adding in percentages of other local materials (Knox chert and chalcedony), the total is nearly 97 percent.

Tool Assemblages

Different tool categories were used to group artifacts during analysis of the assemblages recovered from the three rockshelter sites. Categories of tools found at Cold Oak and Rock Bridge included bifacial tools, biface fragments, marginally modified flakes, and utilized flakes. In contrast, tool types represented at Jot-em-Down were projectile points, early-stage biface, late-stage biface, and uniface. No attempt was made to clarify and combine the categories. The tool assemblage at Jot-em-Down accounted for 2.5 percent of the artifacts recovered. At Cold Oak tools made up 1.2 percent of artifacts collected, and at Rock Bridge tools were 3.5 percent of the total artifacts found.

Debitage-to-Tool Ratios

As mentioned above, the ratios are not comparable between sites, due to differences in artifact categories used in the respective analyses. The ratio of 39:1 for Jot-em-Down suggests less emphasis on tool manufacturing and more on tool maintenance. The same can be said for the ratio at Rock Bridge (28:1). The larger ratio at Cold Oak (81:1) suggests that there was more emphasis on tool production and less on maintenance.

Flake Variables

The highest percentage of early-stage reduction flakes was noted at Cold Oak. Jot-em-Down and Rock Bridge had less, but similar percentages. Jot-em-Down had 55.2 percent middle-stage flakes; percentages at Cold Oak and at Rock Bridge were similar to each other. Rock Bridge had the highest percentage of late-stage flakes.

Flake type percentages were highly variable among the three rockshelters (Table 8.2). Jot-em-Down had the highest percentage of primary flakes, which is 2.5 times the percentage at Cold Oak and 11.5 times the percentage at Rock Bridge. Secondary flakes

and interior were most prevalent at Cold Oak. Jot-em-Down and Rock Bridge were similar with respect to interior flakes and were only slightly less than that at Cold Oak. Percentages of bifacial thinning flakes and angular fragments varied. Flake fragments accounted for the highest percentage of all flake types for Jot-em-Down and Rock Bridge.

Discussion

Jot-em-Down, Cold Oak, and Rock Bridge rockshelters are located in different areas within the Eastern Kentucky Mountains along the Cumberland Plateau, and were occupied during different time periods with varying durations. The debitage analysis completed at each site allows for comparisons of lithic utilization at the sites. The assessment of Table 8.2 above, and the previous comparisons of other sites to Jot-em-Down, led to the following conclusions.

The occupants of Jot-em-Down were processing local chert that had been gathered and transported to the shelter without reduction. In contrast, the occupants of Cold Oak and Rock Bridge were processing local chert that had been reduced somewhat before carrying to the shelters. This is evidenced by the small primary and larger secondary flake percentages at Cold Oak and Rock Bridge.

Although percentages vary, it appears there were similar rates of knapping activities, whether representing production or maintenance, at the three rockshelters. There was a slightly larger percentage of interior flakes at Cold Oak, but Jot-em-Down has the highest percentage of middle reduction stage flakes. A similar pattern was noted with bifacial thinning flakes and late-stage reduction. Rock Bridge had the larger percentage of

bifacial thinning flakes, but the percentage of bifacial thinning flakes from Cold Oak was not much less. Jot-em-Down and Cold Oak had similar percentages of late-stage flakes.

However, if the patterns described above are based on similar knapping rates, it is not clear why flake fragment percentages were so different. It is expected that flake fragments would make up the bulk of flakes from knapping practices. That was the case in previous comparisons described above, as well as in replication experiments conducted by Faulkner (Sharp et al. 2001). Jot-em-Down and Rock Bridge exhibit the usual pattern: the highest flake percentage is fragments. At Cold Oak the interior flakes make up the highest percentage. The reason for the difference is not clear, but may be related to the large debitage-to-tool ratio at Cold Oak, which suggests more tool production.

Angular fragment data were only available as part of this regional site comparison. Rock Bridge has 1.5 times the percentage of angular fragments as Jot-em-Down, and Cold Oak has more than 2 times the percentage. The reason for the differences in percentages between the sites is not evident, but the percentages are low at all three shelters, which would be expected.

As stated above, it is believed similar knapping activities were occurring at the three rockshelters sites. However, the variances in debitage-to-tool ratios point to different reasons for the flintknapping that was occurring. The smaller ratios found at Rock Bridge (28:1) and Jot-em-Down (39:1), suggest that the knapping at these sites was more for tool maintenance than tool production. In contrast, the larger ratio of 81:1 suggests that tool production was the main knapping activity at Cold Oak.

Chapter 9 - Summary and Conclusions

Jot-em-Down Shelter (15McY348) is a medium-sized rockshelter located in south central McCreary County, Kentucky, on the eastern edge of the Lake Cumberland Section of the Upper Cumberland Management Area (Pollack 2008). That portion of the Lake Cumberland Section lies within the rugged Cumberland Plateau, which is the westernmost section of the broader Appalachian Mountain system. It is approximately 3 km from the Kentucky/Tennessee border (Figure 1.1). The site was excavated in 1986 by Forest Service archaeologists as part of the procedure for a land exchange. Three excavation units were dug (Figure 1.2). In all, 8 square meters were excavated at the site.

Charcoal samples were collected from each test unit. The sample from Test Unit 1 was collected from Level 7, and the calibrated radiocarbon date ranged from 170 B.C.-A.D. 220. Although a Lowe Flared Base projectile point was recovered from this level, so too was a Late Prehistoric Madison Type 5 point. This suggests the deposits in Test Unit 1 are mixed. The charcoal sample taken from Test Unit 2, Level 8 had a calibrated radiocarbon date range of 1490 to 1120 B.C. This date range conformed to the age of the projectile point recovered from Level 9 that, although not typed, resembles a Late Archaic stemmed points. A Middle Woodland component was represented by two Copena Triangular projectile points that were recovered from Levels 8 and 4, and three Late Prehistoric triangular points were also collected from Level 4. Deposits in this unit are thought to be intact. The calibrated radiocarbon date for Test Unit 3, Level 7 ranged from 1500 to 1060 B.C. That date matches the two Late Archaic projectile points recovered from Level 6. The presence of a Late Woodland projectile point collected in Level 4 supports the view that the deposits are intact at Test Unit 3.

In 1986, all lithic artifacts were separated from the other artifacts collected during excavation, were kept grouped together by excavation unit and level, and were cataloged and bagged. For this study, lithic artifacts, exclusively chipped stone, were analyzed following the examples of Sussenbach (1991) and Boedy (2001). The artifacts were sized graded into three grades passing them through a series of screens. Artifacts smaller than 1/4" were not analyzed further.

The three size grades were then categorized according to artifact classes and particular attributes. Information recorded during analysis included screen size, artifact type, chert type, presence or absence of cortex, presence or absence of utilization, presence or absence of heat exposure, and weight and number of artifacts in each category (Chapter 5).

The data collected from the lithic analysis was used to compare lithic artifacts from within and among test units (Chapter 6). The data was also compared to data collected from sites 15McY570 and 15McY616 (Sussenbach 1997), sites 15McY403 and 15McY409 (Boedy 2001) (Chapter 7), and Cold Oak (15LE50) and Rock Bridge (15WO75) (Applegate 1997) (Chapter 8). The lithic categories used to separate Jot-em-Down artifacts were the same as those used by Sussenbach and Boedy. This made the intersite analysis with the other McCreary County sites possible and relevant. Comparisons to the regional sites, Cold Oak and Rock Bridge were not as straight forward, but still contributed to answering the research questions posed.

The intrasite analysis identified the existence of vertical and horizontal patterning, revealing the presence or absence of stratigraphic integrity within each individual test unit, and detecting activities conducted by the occupants across the site. The vertical

arrangement of diagnostic projectile points and calibrated radiocarbon dates helped to discern the stratigraphic integrity of the units. Calibrated radiocarbon dates in Test Units 2 and 3 were supported by the chronological order of recovered projectile points. Deposits in these two test units are believed to be intact. To the contrary, Test Unit 1 had calibrated radiocarbon dates that did not match the projectile points collected from the same level. In addition, most projectile points were out of chronological order. It appears the area around this unit has been disturbed by previous looting. The calibrated radiocarbon dates show use of the shelter during the Late Archaic and Middle Woodland periods (1500 B.C to A.D. 220). The horizontal patterning shown, as it pertains to projectile points, suggests occupations at the site starting about 7000 BC and lasting to nearly AD 1300 (Early Archaic to Mississippi).

The lithic materials found throughout the test units showed an abundant use of the locally available Monteagle chert. As overall chert usage increased, as shown by increases of debitage frequencies per unit level, more varieties of lithic materials were used. This was observed in all three units; however, Test Unit 1 is thought to have been disturbed, so the appearance of vertical patterning is not reliable in that unit.

The horizontal patterning of lithic material types reveals a fairly even distribution of cherts, although most are represented in percentages less than one percent. Fort Payne and Haney cherts occurred throughout the shelter, being recovered from all test units. Knox and Boyle cherts and chalcedony were present in two test units, while Breathitt was only present in Test Unit 2. Unidentified chert was found in all test units.

The comparison of Monteagle chert debitage revealed that there was consistent vertical patterning within the levels for each test unit. The majority of levels in each test

unit had larger percentages of debitage without cortex, that was not utilized or exposed to heat, and was size graded at one-quarter inch. Total numbers of debitage increased from the top to the bottom of the excavation units, while overall percentages of flake attributes stayed fairly constant throughout the units. The only exceptions to this were in lower levels were artifact densities tapered off in each unit.

There was a similar trend across the site, with two exceptions. The percentage of heat exposed debitage was nearly two times less in Test Unit 1 and Test Unit 2 had a slightly smaller percentage of one-quarter inch sized debitage. However, the horizontal patterning showed similarities between the test units and thus, across the site.

Although frequencies and percentages were different for each test unit, the overall vertical pattern of flake types was similar. Primary and secondary flakes were the least represented. Interior flakes had slightly larger percentages than bifacial thinning flakes, and flake fragments were the bulk of the debitage recovered. Angular fragments accounted for low percentages in each test unit. The exceptions to this patterning were lower levels with few artifacts.

Observations of percentages across test units revealed some differences in horizontal patterns in flake type. Test Units 2 and 3 were more alike than either unit was similar to Test Unit 1. Test Units 2 and 3 had percentages comparable to the vertical patterning which included, low percentages of primary and secondary flakes and angular fragments, close percentages between interior and bifacial thinning flakes, and the bulk of debitage in the two units was flake fragments. Differences observed in the horizontal debitage patterning in Test Unit 1 are thought to have been a result of the disturbance believed to have taken place in that unit.

The observations of vertical and horizontal patterning would suggest that similar activities were occurring across the site, although perhaps to a lesser extent in the area around Test Unit 1. However, this could be due to the disturbed nature of the unit. Overall, there appears to be an intensification of shelter use following the Late Archaic period. Monteagle chert is the predominant lithic material, but other local and nonlocal materials are utilized. Flintknapping activities are similar throughout the shelter and involve early reduction on Monteagle nodules. Other cherts found at the site were brought to the site after early reduction at other locations. Tools that are being produced include projectile points, endscrapers, drills, and utilized flakes. These items suggest that the activities engaged in by the occupants of the shelter include: hunting, hide processing, perforating, and the use of expedient tools.

Comparisons between lithic data at Jot-em-Down and the open sites 15McY570 and 15McY616 provided insight into differences and similarities of the activities at a rockshelter site and two open ridge crest sites. The open sites were occupied from the Early Archaic through Late Archaic periods. Those periods correspond with the periods before use at Jot-em-Down begins to intensify. All three sites relied heavily on local Monteagle chert and chalcedony. Although local, Knox chert was only found at Jot-em-Down. Fort Payne was available from the west in the Cumberland River drainage and occurred at all the sites. Each site had artifacts manufactured from non-local cherts that were available from other areas of Kentucky and Tennessee. These cherts were reduced and brought to the sites as preforms or finished tools. These patterns probably reflect the travel and trade routes followed by groups using these three sites.

Debitage-to-tool ratios and percentages of flake stages suggest that tool production was more intensive at sites 15McY570 and 15McY616, while Jot-em-Down lithic materials reflected a mixture of production and maintenance activities. Similar tool types were recovered from the sites (projectile points, early-stage bifaces, late-stage bifaces, unifaces, and drills). Similar activities occurred at the sites and would have included: tool production, hunting, and perforation. Jot-em-Down had a tool type not found at the open sites, endscrapers, which may indicate that hide processing occurred at the shelter. There were more utilized flakes at Jot-em-Down, suggesting that the occupants made use of expedient tools.

Similarities and differences were noted when comparing the rockshelter sites, 15McY403 and 15McY409, to Jot-em-Down. Jot-em-Down was occupied from the Early Archaic through Late Woodland/Mississippi periods. The other rockshelters were utilized toward the end of the period of Jot-em-Down occupation that extended from the Middle Woodland through Late Woodland/Mississippi periods. The majority of artifacts recovered from the three rockshelters were manufactured from the locally available Monteagle chert. Monteagle debitage characteristics were similar across the three sites. The debitage reduction stages were represented fairly equally among the sites. This suggests that similar flintknapping activities were occurring at each site. The much larger debitage-to-tool ratio at rockshelter site15McY409 suggests more tool production and less maintenance occurred there than the other two shelters.

Tools present at all three sites included projectile points, early-stage bifaces, and late-stage bifaces. Drills were recovered at Jot-em-Down and site 15McY403, and unifaces and endscrapers were recovered from Jot-em-Down. The tool assemblages suggest that

hunting was a major activity at each site, while drilling took place at Jot-em-Down and site 15McY403. Hide processing was also evident at Jot-em-Down. More expedient tool use was present at Jot-em-Down, also.

Although lithic technology was comparable in many ways, Jot-em-Down is different from the other two shelters in two key areas. First, Jot-em-Down Shelter is larger, and it was estimated that approximately 15 - 20 people could have occupied the site comfortably at one time. In contrast, Boedy (2001) estimated that small family units or hunting bands of 5-7 individuals used sites 15McY403 or site15McY409. Second, Jot-em-Down was occupied for a longer time. This may explain the additional tools which represent more activities at Jot-em-Down. The rockshelter was inhabited for more years by larger groups, and utilized for more events.

The last comparison was between Jot-em-Down Shelter and two rockshelters in the Red River Gorge area of Kentucky. Cold Oak Shelter (15LE50) was occupied in the Terminal Archaic and Woodland periods. Rock Bridge (15WO75) is a single component site comprised of the Late Woodland period. Due to difference in lithic analyses, comparisons of Jot-em-Down to Cold Oak and Rock Bridge were not as thorough as the assessments with the McCreary County sites. However, patterns were noted.

It appears similar knapping activities were occurring at the three rockshelters sites. The majority of chert manipulated at each site was local chert; however, the local chert at Jot-em-Down was transported to the shelter without reduction. In contrast, the occupants of Cold Oak and Rock Bridge were processing local chert that had been reduced before arrival at the shelter. The smaller debitage-to-tool ratios at Rock Bridge (28:1) and Jot-em-Down (39:1) suggest that the knapping at these sites were more for tool maintenance

than tool production. In contrast, the larger ratio at Cold Oak (81:1) suggests that tool production was the main knapping activity at that shelter.

Conclusions

The goal of the lithic analysis completed on artifacts recovered at Jot-em-Down Shelter (15McY348) was to answer three research questions. First, the research data from local sites (15McY570, 15McY616, 15McY403, and 15McY409) provided comparative information on open and rockshelter sites that were in the vicinity of Jot-em-Down. This information, coupled with that from other nearby sites (Carmean and Sharp1998 and Sharp et al. 2001) allowed for the examination of settlement patterns along the Cumberland Plateau.

The use of Jot-em-Down intensified during the Late Archaic period and continued into the Mississippi period. Vertical and horizontal patterning revealed increasingly intensive use through time as evidenced by increasing amounts of debitage, changes in projectile point styles, and the introduction of different lithic types. In contrast, the nearby open sites 15McY570 and 15McY616 were only utilized from the Early Archaic period through Late Archaic period. Although smaller, the utilization of rockshelter sites 15McY403 and 15McY409 was contemporaneous with the intensified use of Jot-em-Down. The rockshelters were occupied in the Middle Woodland and Late Woodland/Mississippi periods.

Rockshelter use during the Woodland period in Eastern Kentucky was addressed by Carmean and Sharp (1998). They excavated three rockshelter sites in Laurel County, Kentucky and concluded that Woodland populations in the eastern mountains, in contrast to more sedentary populations elsewhere in the region, continued a "higher degree of

residential mobility at all times of the year", and this "mobility may have been a more efficient mechanism for exploiting their local environment (Carmean and Sharp 1998:57). With similar topography and environmental conditions, it is feasible that the same settlement pattern is represented by the McCreary County rockshelter sites. I suggest that Jot-em-Down was used by mobile groups who began to use rockshelters more intensely during the Late Archaic period, and continued that use into the Woodland and Mississippi periods.

Secondly, chert type use provides additional insight into group mobility as well as preference of the inhabitants of Jot-em-Down. The majority of all lithics (96%) and tools (88%) were manufactured from local Monteagle chert. All primary flakes and secondary flakes were from local materials. This suggests that local materials were the only ones carried to the shelter before any reduction. Inhabitants did not transport these far from their source.

Fort Payne was the second most frequently used chert type at the site. Although not a local chert, the source for the chert is located to the west of Jot-em-Down in the Cumberland River drainage in Russell, Cumberland, and Monroe Counties of Kentucky, as well as adjacent portions of Tennessee (Sussenbach 1997). The presence of only middle and late-stage reduction flakes, fragments, and projectile points manufactured from Fort Payne shows that flintknapping of the chert occurred at Jot-em-Down. However, the chert was reduced before transport to the shelter.

The three additional cherts present in very low quantities, Haney, Boyle, and Breathitt, were collected from locations much further away from Jot-em-Down. Haney chert is found in the Kentucky/ Red River drainages of Kentucky, Boyle chert occurs in geologic

formations in the Outer Bluegrass of Kentucky, and Breathitt chert crops out in the upper Kentucky River drainage in Kentucky. The presence of interior flakes and flake fragments verifies that those three chert types were processed into tools at Jot-em-Down.

The existence of Fort Payne, Haney, Boyle, and Breathitt cherts provides evidence of the contact Jot-em-Down inhabitants had with other areas outside the Upper Cumberland River drainage. This contact may have been direct, indirect, or a combination of interaction with other groups. It is not clear if groups utilizing Jot-em-Down were coming from these other areas, simply crossing paths with people from the other areas, or trading with "in between" groups. But it can be stated that Jot-em-Down inhabitants were able to procure and utilize non-local cherts from the west and south (Fort Payne), northeast (Haney), northwest (Boyle), and the east (Breathitt).

The last research objective was to discern the types of tool manufacturing or maintenance that occurred at Jot-em-Down in order to determine site function. As evidenced by debitage collected at the site, all stages of bifacial reduction were occurring. The overall debitage-to-tool ratio suggests that tool maintenance was of more importance than tool production. As discussed above, a mixture of maintenance and production occurred at the site.

Tools produced and/or utilized at the shelter included projectile points, early and late-stage bifaces, unifaces, drills, endscrapers, and utilized flakes. These tools suggest hunting and hide processing were major activities at the site. The presence of drills and a flake used as a graver suggests that perforation and incising occurred at the site. Utilized flakes are evidence of the use of expedient tools.

From the lithic analysis documented here, Jot-em-Down Shelter can be characterized as a multicomponent site used by mobile groups of people from the Early Archaic through Mississippi periods. Use of the site intensified around the Late Archaic and Early Woodland periods. Those utilizing the shelter had contact with other groups from the surrounding area. Hunting and hide processing were the main activities conducted by the inhabitants of the shelter.

Appendix A – Projectile Points

Catalogue Number: 13
Figure: N/A
Context: Test Unit 1, Level 3
Chert Type: Monteagle
Length: 28.5 mm
Blade Length: not measurable (heat spalled)
Stem Length: not measurable (heat spalled)
Blade Width: not measurable to measure (heat spalled)
Base Width: not measurable (heat spalled)
Thickness: not measurable (heat spalled)
Weight: 2.6 gm

Description: This is a heat spalled fragment of what was possibly a medium-sized triangular point.

Type: Due to the fragmented and heat spalled nature of this specimen, no projectile point type was discernible.

Age: Not assignable.

Catalogue Number: 26
Figure: N/A
Context: Test Unit 1, Level 4
Chert Type: Haney
Length: base only, no total length possible
Blade Length: not measurable
Stem Length: 14.4 mm
Blade Width: not measurable
Base Width: 25.7 mm
Thickness: 4.1 mm
Weight: 1.5 gm

Description: This projectile point base is a wide, notched specimen. There is no evidence of basal grinding.

Type: Possibly Kirk Corner Notched.

Age: Possibly early Archaic.

Catalogue Number: 41
Figure: N/A
Context: Test Unit 1, Level 5
Chert Type: Monteagle
Length: 34.7 mm
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 5.0 gm

Description: This projectile point has been heavily damaged by heat spalling. One surface, the tip, and both edges have been impacted. In addition, the base has been snapped. No diagnostic information is obtainable from this point.

Type: Due to heat damage, point type is not discernible.

Age: Age cannot be determined.

Catalogue Number: 80
Figure: 5.2 (1)
Context: Test Unit 1, Level 6
Chert Type: Monteagle
Length: 39.4 mm
Blade Length: 29.1 mm (no tip)
Stem Length: 10.9 mm
Blade Width: 24.0 mm
Base Width: 4.7 mm
Thickness: 7.7 mm
Weight: 5.4 gm

Description: This point is made of light gray Monteagle chert. There is a high midpoint on one side of the point where it was not thinned. Small portions of cortex occur on the base, notches, and sides. The very tip of the point has been broken.

Type: Motley

Age: Motley projectile points are large forms with deep corner notches and straight to slightly convex blade edges, wide, round notches, narrow necks and wide shoulders. They appear in the Late Archaic and continue into the Early Woodland period (Justice 1987).

Catalogue Number: 77
Figure: N/A
Context: Test Unit 1, Level 6
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: 17.1 mm
Thickness: not measurable
Weight: 0.8 gm

Description: This is a projectile point base fragment that is thinned. The blade has been snapped near the base. Very little information can be discerned from this specimen.

Type: unassigned

Age: unassigned

Catalogue Number: 92
Figure: 5.2 (2)
Context: Test Unit 1, Level 6
Chert Type: Monteagle
Length: 20.8 mm (broken)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: 23.2 mm
Base Width: not measurable
Thickness: 4.2 mm
Weight: 2.2 gm

Description: This is a very thin, wide projectile point with a slightly curved base. One side and the tip have been broken.

Type: Jack's Reef Pentagonal

Age: Jack's Reef Pentagonal points are diagnostic of the Late Woodland period (Justice 1987).

Catalogue Number: 93
Figure: 5.2 (3)
Context: Test Unit 1, Level 6
Chert Type: Monteagle
Length: 35.2 mm (tip broken)
Blade Length: 26.6 mm
Stem Length: 8.0 mm
Blade Width: 20.9 mm
Base Width: 22.6 mm
Thickness: 8.0 mm
Weight: 5.7 gm

Description: This point has a base that is wider than the shoulders. The notches are deep and curved. The tip is missing

Type: Indeterminate, similar to Motley or Jack's Reef Corner Notched.

Age: Somewhere between the Late Archaic and the Late Woodland periods.

Catalogue Number: 106
Figure: 5.2 (4)
Context: Test Unit 1, Level 7
Chert Type: Knox
Length: 35.7 mm
Blade Length: 27.3 mm
Stem Length: 8.4 mm
Blade Width: 16.9 mm
Base Width: 18.8 mm
Thickness: 6.5 mm
Weight: 4.0 gm

Description: This is a well-made projectile point of high quality Knox chert. It is a complete triangular point.

Type: Madison (Type 5)

Age: Madison projectile points are diagnostic of the Late Woodland and Mississippi periods (Justice 1987).

Catalogue Number: 111
Figure: 5.2 (5)
Context: Test Unit 1, Level 7
Chert Type: Monteagle
Length: 39.6 mm (tip broken)
Blade Length: 28.7 mm (tip broken)
Stem Length: 10.9 mm
Blade Width: 22.7 mm
Base Width: 18.8 mm
Thickness: 8.8 mm
Weight: 8.3 gm

Description: This is a light gray projectile point with only one side notch. The other side appears to have been flawed and fractured during construction and was unable to sustain a notch. The base has been snapped and may represent the striking platform from which the chert was removed from the core. The tip appears to have been fractured and probably never came to a point.

Type: Lowe Flared Base

Age: Lowe Flared Base projectile points are associated with the terminal Middle Woodland period (Justice 1987).

Catalogue Number: 24
Figure: N/A
Context: Test Unit 1, Level 4
Chert Type: Monteagle
Length: not measurable (base only)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 1.3 gm

Description: No measurements were possible on this small piece of light gray point base.

Type: Not assignable.

Age: Not assignable.

Catalogue Number: 25
Figure: N/A
Context: Test Unit 1, Level 4
Chert Type: Monteagle
Length: not measurable (base only)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 1.3 gm

Description: No measurements were possible on this small piece of light gray point base.

Type: Not assignable.

Age: Not assignable.

Catalogue Number: 52
Figure: N/A
Context: Test Unit 1, Level 5
Chert Type: Monteagle
Length: not measurable (base only)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: 23.6 mm
Thickness: not measurable
Weight: 1.4 gm

Description: This is a heat spalled base most likely from a triangular projectile point.

Type: Triangular point.

Age: Triangular points are associated with the late prehistoric periods.

Catalogue Number: 91
Figure: N/A
Context: Test Unit 1, Level 6
Chert Type: Monteagle
Length: not measurable (base only)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: .5 gm

Description: No measurements were possible on this small piece of light gray point base.

Type: Not assignable.

Age: Not assignable.

Catalogue Number: 200
Figure: N/A
Context: Test Unit 2, Level 1 and 2
Chert Type: Monteagle
Length: 44.5 mm (broken tip and base)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: 22.9 mm
Base Width: not measurable
Thickness: 7.4 mm
Weight: 9.1 gm

Description: This is a gray projectile point with a broken tip and missing, snapped base. It was recovered from disturbed deposits.

Type: Not assignable.

Age: Not assignable.

Catalogue Number: 233
Figure: 5.2 (6)
Context: Test Unit 2, Level 4
Chert Type: Unknown
Length: 40.0 mm (tip broken)
Blade Length: not measurable
Stem Length: 12.1 mm
Blade Width: 22.0 mm
Base Width: not measurable
Thickness: 11.8 mm
Weight: 10.1 gm

Description: This is a medium-sized triangular point made from grainy, gray chert. One ear has been snapped and the remaining one has cortex. There is a large hump on the blade resulting from a failure to thin.

Type: Copena Triangular

Age: Copena Triangular points are associated with the Middle Woodland period.

Catalogue Number: 234
Figure: N/A
Context: Test Unit 2, Level 4
Chert Type: Monteagle
Length: not measurable (base only)
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: 17.0 mm
Thickness: not measurable
Weight: 1.0 gm

Description: Few measurements were possible on this small piece of light gray point base.

Type: Not assignable.

Age: Not assignable.

Catalogue Number: 243
Figure: N/A
Context: Test Unit 2, Level 4
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: 7.8 mm
Blade Width: 11.8 mm
Base Width: 14.6 mm
Thickness: not measurable
Weight: 0.5 gm

Description: This is the lower portion of a small triangular, light gray projectile point with pronounced ears that result in a thinned, concave base.

Type: Not assignable.

Age: Triangular points are associated with the late prehistoric periods.

Catalogue Number: 244
Figure: N/A
Context: Test Unit 2, Level 4
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 0.3 gm

Description: No measurements were possible on this small piece of dark gray point base. However, it is the thinned base of a small triangular point.

Type: Not assignable.

Age: Triangular points are associated with the late prehistoric periods.

Catalogue Number: 251
Figure: N/A
Context: Test Unit 2, Level 4
Chert Type: Monteagle
Length: 31.4 mm
Blade Length: 24.3 mm
Stem Length: 9.1 mm
Blade Width: 24.7 mm
Base Width: 16.3 mm
Thickness: 6.4 mm
Weight: 5.0 gm

Description: This is a projectile point produced from a flake. Flake scars are very prominent and one large flake was removed across the center to thin the point. The expanding stem has notches that are asymmetrical. The base is unground.

Type: Not assignable.

Age: Not assignable.

Catalogue Number: 252
Figure: N/A
Context: Test Unit 2, Level 4
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: 4.8 mm
Blade Width: 14.0 mm
Base Width: not measurable
Thickness: not measurable
Weight: 1.1 gm

Description: This is a base of a triangular point with pronounced ears. One ear and the blade have been broken. The base is thick due to a failure to thin.

Type: Not assignable.

Age: Triangular points are associated with the late prehistoric periods.

Catalogue Number: 296
Figure: 5.2 (7)
Context: Test Unit 2, Level 8 (A and B)
Chert Type: Monteagle
Length: 43.8 mm
Blade Length: 35.5 mm
Stem Length: 8.3 mm
Blade Width: 21.8 mm
Base Width: not measurable (one ear broken)
Thickness: 8.2 mm
Weight: 7.7 gm

Description: This projectile point has excurvate edges and pronounced ears, although one has been snapped. Both sides exhibited a hump due to a failure to thin. The tip of the point is blunt as it is formed by the sticking platform that removed a flake from the core. The point also has some cortex on the blade.

Type: Copena Triangular

Age: Copena Triangular points are diagnostic of the Middle Woodland period (Justice 1987).

Catalogue Number: 298
Figure: N/A
Context: Test Unit 2, Level 9
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: 23.4 mm
Base Width: not measurable
Thickness: 9.0 mm
Weight: 7.2 gm

Description: This is a stemmed projectile point, but the stem and upper blade have been snapped. Few measurements could be taken.

Type: The type is unassigned, although the point shares characteristics with Late Archaic stemmed points.

Age: Possibly Late Archaic

Catalogue Number: 307
Figure: N/A
Context: Test Unit 3, Level 1
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 2.8 gm

Description: This is a base fragment with one existing notch, a snapped blade, and a heat spalled ear and barb. Little can be discerned from the remains of this projectile point.

Type: unassigned

Age: unassigned

Catalogue Number: No number
Figure: N/A
Context: Test Unit 3, Level 3
Chert Type: Fort Payne
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 1.0 gm

Description: This is a thick projectile point base. The breakage line is jagged, not smooth like a snapped break. Along with the blade, one ear has been broken. Very little could be discerned from this specimen.

Type: unassigned

Age: unassigned

Catalogue Number: 367
Figure: N/A
Context: Test Unit 3, Level 4 (intact deposits)
Chert Type: Fort Payne
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: 21.1 mm
Thickness: not measurable
Weight: 1.7 mm

Description: This is a very thin projectile point fragment. The blade has been snapped in two places (top and side) and is also heat spalled on both faces. Only two measurements were feasible from the specimen.

Type: Jack's Reef Pentagonal

Age: Jack's Reef Pentagonal points are diagnostic of the Late Woodland period.

Catalogue Number: 368
Figure: N/A
Context: Test Unit 3, Level 4 (intact deposits)
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 0.6

Description: This is a very fragmented piece of a projectile point base. It appears to be the base of a stemmed point that has not been thinned, but little can be discerned from the specimen.

Type: unassigned

Age: unassigned

Catalogue Number: 385
Figure: N/A
Context: Test Unit 3, Level 5 (intact deposits)
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 0.9 gm

Description: This is a fragmented projectile point base that like the previous base (#368) has not been thinned. One notch is intact, but the bottom of the base has been snapped. The blade has also been snapped, just above the intact notch. Limited information can be gathered from this specimen.

Type: unassigned

Age: unassigned

Catalogue Number: No number
Figure: N/A
Context: Test Unit 3, Level 5
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 0.4 gm

Description: This is a projectile point base fragment that has been thinned and ground. The blade has been snapped near the base and one ear has been damaged. Very little information can be discerned from this specimen.

Type: unassigned

Age: unassigned

Catalogue Number: 414
Figure: 5.2 (8)
Context: Test Unit 3, Level 6
Chert Type: Monteagle
Length: 38.9 mm
Blade Length: 32.4 mm
Stem Length: 6.5 mm
Blade Width: 20.0 mm
Base Width: 10.9 mm
Thickness: 6.6 mm
Weight: 4.5 gm

Description: This is a small stemmed projectile point with large flake scars on both faces where the point was thinned. Other prominent flake scars are near both notches.

Type: The point most resembles something in the Table Rock Cluster, perhaps Flint Creek.

Age: Points in the Table Rock Cluster are diagnostic of the Late Archaic (Justice 1987).

Catalogue Number: 415
Figure: 5.2 (9)
Context: Test Unit 3, Level 6
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: 27.0 mm
Base Width: not measurable
Thickness: not measurable
Weight: 5.8 gm

Description: This projectile point has been snapped above the hafting element, at one barb, and at the end of the base. In addition, each face has been heat spalled. However, the pointed barb and thin blade edge that remain provide evidence of the type of point represented.

Type: Eva II

Age: Eva II projectile points are diagnostic of the Middle Archaic period.

Catalogue Number: 423
Figure: N/A
Context: Test Unit 3, Level 7
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: not measurable
Thickness: not measurable
Weight: 0.6

Description: This is a very fragmented piece of a projectile point base. It appears to be the base of a stemmed point that has not been thinned, but little can be discerned from the specimen.

Type: unassigned

Age: unassigned

Catalogue Number: 424
Figure: N/A
Context: Test Unit 3, Level 7
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: 17.2 mm
Thickness: not measurable
Weight: 0.9 gm

Description: This is a well-thinned projectile point base. The blade has been snapped near the base. Very little information can be discerned from this specimen.

Type: unassigned

Age: unassigned

Catalogue Number: 436
Figure: N/A
Context: Test Unit 3, Level 9
Chert Type: Monteagle
Length: not measurable
Blade Length: not measurable
Stem Length: not measurable
Blade Width: not measurable
Base Width: 22.1 mm
Thickness: not measurable
Weight: 1.0 gm

Description: This is a projectile point base fragment that is thinned and unground. The blade has been snapped near the base. Very little information can be discerned from this specimen.

Type: unassigned

Age: unassigned

Appendix B - Ceramics

The data provided in Tables B.1 and B.2 was compiled from the analysis conducted on the ninety-six sherds collected from Jot-em-Down Shelter. Seven of the sherds were collected from the surface during site recordation. Eighty-nine sherds were recovered from the excavation units. The data from the ninety-six sherds was compared to 169 sherds that were collected from a nearby rockshelter, Cap Knob (White 2011). The analysis was completed as part of a class project, and the results presented in a class report. Only information pertaining to Jot-em-Down ceramics is presented here. The complete report is on file at the William S. Webb Museum of Anthropology.

Table B.1: Ceramics Analyzed from Jot-em-Down.

Sample	Provenience	Surface Treatment	Wall Thickness	Temper	Other Inclusions
170	Surface	Cordmarked	5.1	Limestone	None
171	Surface	Cordmarked	5.8	Limestone	None
172	Surface	Cordmarked	7.2	Limestone	None
173	Surface	Cordmarked	7.9	Limestone	None
174	Surface	Cordmarked	7.2	Limestone	None
175	Surface	Cordmarked	6.9	Limestone	None
176	Surface	Cordmarked	6.3	Limestone	None
177	TU 1, L1	Cordmarked	6.2	Quartz Sand	Sandstone
178	TU 1, L4	Plain	5.9	Quartz Sand	Sandstone
179	TU 1, L4	Plain	6.0	Quartz Sand	None
180	TU 1, L5	Plain	5.3	Quartz Sand	None
181	TU 1, L5	Plain	5.4	Quartz Sand	None
182	TU 1, L5	Cordmarked	7.0	Quartz	None
183	TU 1, L5	Cordmarked	8.9	Quartz	Sandstone
184	TU 1, L6	Cordmarked	8.0	Quartz	None
185	TU 1, L6	Cordmarked	8.1	Quartz	None
186	TU 1, L6	Cordmarked	8.3	Quartz	None
187	TU 1, L6	Undetermined	Too eroded	Unknown	-
188	TU 1, L6	Cordmarked	6.5	Quartz	None
189	TU 1, L6	Plain	5.6	Quartz	None
190	TU 1, L6	Plain	5.6	Quartz Sand	None
191	TU 1, L6	Plain	5.1	Quartz Sand	None

Table B.1: (continued)

Sample	Provenience	Surface Treatment	Wall Thickness	Temper	Other Inclusions
192	TU 1, L6	Undetermined	7.9	Unknown	-
193	TU 1, L6	Plain	5.3	Unknown	-
194	TU 1, L9	Plain	5.3	Quartz Sand	None
195	TU 1, L12	Plain	4.8	Quartz Sand	None
196	TU 1, L12	Plain	Too eroded	Quartz Sand	None
197	TU 1, L13	Plain	6.1	Quartz Sand	Quartz
198	TU 2, L1	Cordmarked	7.0	Quartz	Sandstone
199	TU 2, L1	Cordmarked	5.8	Limestone	None
200	TU 2, L3	Cordmarked	7.5	Quartz	None
201	TU 2, L3	Plain	5.2	Limestone	None
202	TU 2, L3	Plain	5.2	Shell	None
203	TU 2, L3	Cordmarked	7.8	Quartz Sand	None
204	TU 2, L3	Cordmarked	4.8	Quartz Sand	None
205	TU 2, L4	Plain	3.5	Quartz	Quartz Sand
206	TU 2, L4	Undetermined	Too eroded	Unknown	-
207	TU 2, L4	Undetermined	9.7	Quartz	None
208	TU 2, L4	Undetermined	7.0	Limestone	None
209	TU 2, L4	Cordmarked	8.6	Quartz	Quartz Sand
210	TU 2, L4	Cordmarked	6.8	Quartz	None
211	TU 2, L4	Plain	4.8	Quartz	None
212	TU 2, L4	Plain	6.2	Quartz Sand	Sandstone
213	TU 2, L4	Plain	4.8	Shell	None
214	TU 2, L5	Plain	8.1	Limestone	None
215	TU 2, L5	Cordmarked	5.8	Quartz	None
216	TU 2, L5	Cordmarked	9.8	Quartz	None
217	TU 2, L5	Cordmarked	9.3	Quartz	None
218	TU 2, L5	Cordmarked	6.1	Quartz	None
219	TU 2, L5	Cordmarked	10.1	Quartz	None
220	TU 2, L5	Undetermined	5.7	Limestone	None
221	TU 2, L5	Undetermined	Too eroded	Unknown	-

Table B.1: (continued)

Sample	Provenience	Surface Treatment	Wall Thickness	Temper	Other Inclusions
222	TU 2, L6	Undetermined	8.0	Quartz	None
223	TU 2, L7	Plain	9.2	Limestone	Quartz Sandstone
224	TU 2, L7	Undetermined	Too eroded	Unknown	-
225	TU 2, L7	Undetermined	Too eroded	Limestone	None
226	TU 3, L1	Plain	7.7	Limestone	None
227	TU 3, L1	Undetermined	8.2	Limestone	None
228	TU 3, L1	Cordmarked	8.2	Unknown	-
229	TU 3, L1	Plain	6.6	Shell	None
230	TU 3, L1	Undetermined	10.3	Quartz Sand	Limestone
231	TU 3, L1	Plain	8.2	Chert	None
232	TU 3, L1	Plain	4.5	Limestone	None
233	TU 3, L1	Undetermined	8.0	Quartz	None
234	TU 3, L1	Undetermined	8.2	Quartz	None
235	TU 3, L1	Plain	6.1	Quartz Sand	None
236	TU 3, L1	Plain	9.3	Sandstone	Quartz Sand
237	TU 3, L1	Cordmarked	11.4	Quartz Sand	None
238	TU 3, L1	Plain	6.5	Unknown	-
239	TU 3, L1	Undetermined	6.8	Quartz	None
240	TU 3, L1	Plain	5.1	Quartz	None
241	TU 3, L1	Undetermined	Too eroded	Unknown	-
242	TU 3, L1	Undetermined	Too eroded	Unknown	-
243	TU 3, L2	Undetermined	5.6	Quartz	Sandstone
244	TU 3, L2	Cordmarked	8.4	Chert	None
245	TU 3, L2	Undetermined	8.8	Quartz	None
246	TU 3, L2	Plain	7.5	Limestone	None
247	TU 3, L2	Cordmarked	9.2	Chert	Quartz
248	TU 3, L3	Undetermined	8.8	Quartz	None
249	TU 3, L3	Plain	6.3	Sandstone	None
250	TU 3, L3	Plain	5.4	Limestone	None
251	TU 3, L3	Plain	6.6	Quartz Sand	None
252	TU 3, L3	Undetermined	8.6	Quartz	None
253	TU 3, L3	Undetermined	Too eroded	Limestone	None

Table B.1: (continued)

Sample	Provenience	Surface Treatment	Wall Thickness	Temper	Other Inclusions
254	TU 3, L4	Cordmarked	4.4	Limestone	None
255	TU 3, L4	Undetermined	6.7	Unknown	-
256	TU 3, L5	Plain	3.8	Shell	None
257	TU 3, L5	Plain	6.7	Limestone	Quartz
258	TU 3, L5	Undetermined	8.7	Quartz	None
259	TU 3, L5	Undetermined	Too eroded	Limestone	None
260	TU 3, L5	Plain	7.1	Limestone	Quartz
261	TU 3, L6	Plain	4.9	Limestone	None
262	TU 3, L6	Plain	4.1	Shell	None
263	TU 3, L6	Cordmarked	Too eroded	Unknown	-
264	TU 3, L7	Undetermined	8.1	Limestone	None
265	TU 3, L4 (Wall)	Cordmarked	Too eroded	Quartz	None

Table B.2: Ceramic Ware Groups and Surface Treatment.

Ware Group	Cordmarked	Plain	Undetermined
Quartz Tempered	16	4	10
Quartz Sand Tempered	4	13	1
Limestone Tempered	9	10	7
Sandstone Tempered	-	2	-
Shell Tempered	-	5	-
Chert Tempered	2	1	-
Unknown	2	2	8

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